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The NEW ZEALAND JOURNAL OF AGRICULTURE

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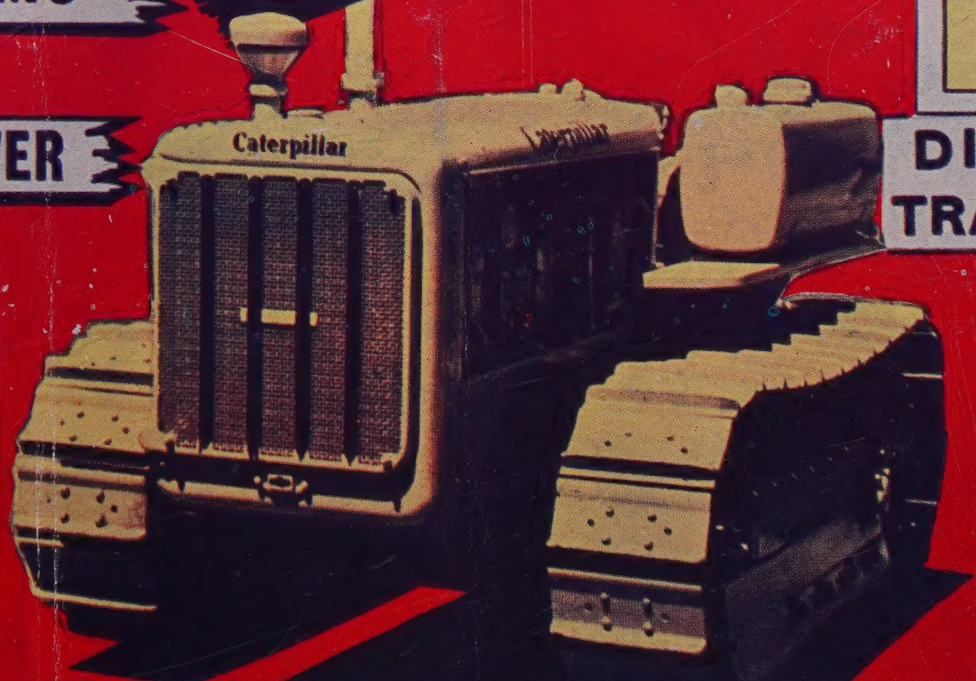

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THE NEW ZEALAND
JOURNAL OF AGRICULTURE

Vol. 64. No. 3.
March 16, 1942.
Wellington.

Published by direction of Hon. J. G. Barclay, Minister of Agriculture.

After consultation with the National Council of Primary Production, the Hon. J. G. Barclay, Minister of Agriculture, has outlined the cropping programme for the 1942-43 season. The Minister will announce the pastoral programme at a later date.

Agricultural Programme for 1942-43 Season

Provision of Adequate Labour Supplies

By
HON. J. G. BARCLAY,
Minister of Agriculture.

AN increased cropping programme is called for during the 1942-43 season. New Zealand must be made as self-supporting as possible in all primary commodities which can be produced in this country, and after consultation with the National Council of Primary Production I now present to the farmers of New Zealand a cropping programme which, under normal conditions, will fill our requirements in the main agricultural crops.

Wheat. — A total area of 245,733 acres was grown during the 1940-41 season, while this season, 1941-42, a total acreage of 258,000 acres was estimated sown. For the coming year the minimum objective will be a sowing of 300,000 acres.

Oats.—Last year 306,944 acres were grown, of which 71,758 acres were for threshing. The estimate of total sowings this season was 275,000 acres. It is advisable that plantings in the coming year should be maintained at least at the level of this year.

Maize.—10,700 acres of maize were grown for threshing and the total crop would be fully absorbed in the Dominion. Producers in the maize-growing areas are asked to maintain their growings at not less than 10,000 acres for the 1942-43 season.

Peas. — The availability of shipping space during the coming year will be the determining factor for the export market, and farmers are therefore recommended to arrange firm contracts with merchants before determining their growing programme.

Linen Flax.—Linen flax is a commodity under contract with the United Kingdom Government, and the area sown this year was approximately 21,000 acres. Under the terms of the agreement with the United Kingdom, the aim was to produce at least 25,000 acres, and this area will also be required for the coming season.

Grass and Clover Seeds.—The aim is to produce sufficient to make the Dominion self-supporting, and also to provide, if possible, a surplus to cater for a growing export trade. Producers are urged to pay particular attention to certified seed when growing perennial ryegrass, Italian ryegrass, cocksfoot, red clover, white clover and browntop because of the probable greater demand for certified seed.

Potatoes.—The area planted last year was approximately 17,000 acres. This year it was estimated that 15,800 acres were grown. It is highly desirable,

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therefore, that farmers should, wherever possible, make plans to plant an increased acreage during next spring.

Onions.—The Dominion would normally be self-supporting on an area of approximately 1,000 acres. Last year the area grown was 903 acres, and, if possible, during the coming year this should be increased to 1,000 acres.

The Government is fully aware in calling for an increased cropping programme that there will be the need to ensure that adequate labour is available. The Government has, therefore, arranged for the necessary labour to be provided to ensure planting this autumn and spring and for the subsequent harvest next season. If this labour is not obtainable through the ordinary channels, provision has been made to secure the assistance of the military authorities.

If petrol is available in the country, farmers can be assured that sufficient supplies will be obtainable to carry out this work. In addition, it is the intention of the Government to organise, if necessary, the supply of essential machinery which will enable all producers, and particularly farmers with small holdings, to harvest their crops with a minimum utilisation of manpower.

At a later date I will make a statement on the pastoral programme for the coming season.

Slaughterings of Stock

THE following returns of slaughterings of stock at meat-export slaughterhouses and abattoirs for the nine months, May, 1941, to January, 1942, have been compiled by the Livestock Division:—

District	Cattle	Calves	Sheep	Of which Ewes were	Lambs	Swine
North Island.						
Meat-export Slaughterhouses—						
Auckland	108,278	572,722	81,794	32,311	1,036,073	252,081
Poverty Bay-Hawke's Bay	40,492	53,015	289,598	123,869	1,180,203	20,542
Taranaki-Manawatu	48,788	215,836	82,757	38,383	993,415	145,277
Wairarapa-Wellington	29,667	25,582	118,436	35,135	730,399	22,286
Totals	227,225	867,155	572,585	229,698	3,940,090	440,186
Abattoirs	89,138	28,781	385,784	189,784	71,315	91,423
North Island Totals	316,363	895,936	958,369	419,482	4,011,405	531,609
South Island.						
Meat-export Slaughterhouses—						
Nelson-Marlborough	712	11,095	16,429	7,881	144,189	8,142
Canterbury	7,949	38,369	266,728	221,481	1,291,521	25,023
Otago-Southland	4,269	42,124	152,809	137,145	1,339,503	5,059
Totals	12,930	91,588	435,966	366,507	2,775,213	38,224
Abattoirs	40,687	10,019	202,752	108,983	38,312	32,928
South Island Totals	53,617	101,607	638,718	475,490	2,813,525	71,152
Dominion.						
Meat-expt. Slaughterhouses	240,155	958,743	1,008,551	596,205	6,715,303	478,410
Abattoirs	129,825	38,800	588,536	298,767	109,627	124,351
Grand Totals	369,988	997,543	1,597,087	894,972	6,824,930	602,761
Same Period, 1940-41— Meat Export Slaughterhouses and Abattoirs	421,084	1,027,348	1,664,225	1,028,015	6,410,297	544,752
Same Period, 1939-40— Meat Export Slaughterhouses and Abattoirs	356,866	1,016,837	1,578,546	779,145	5,535,946	434,153

Slaughterings of Pigs

The 102,769 pigs slaughtered in meat-export slaughterhouses and abattoirs during January were distributed in weight ranges approximately as follows:—

Up to 60 lb.	662
61-110 lb.	30,487
111-120 lb.	10,851
121-160 lb.	48,324
161-180 lb.	6,658
Over 180 lb.	3,074
Sundries	2,713
	102,769

The grading of porkers is 92 per cent. of first quality and 8 per cent. of second quality, and the grading of baconers is 75 per cent. of prime 1's, 20 per cent. of prime 2's and 5 per cent. of second quality.

In the different weight ranges of baconers the grading is as follows:—

111-120 lb. .. .. .. 83%, 14%, 3% of P1, P2 and 2nds respectively.
121-160 lb. .. .. .. 73%, 22%, 5% of P1, P2 and 2nds respectively.
161-180 lb. .. .. .. 62%, 21%, 7% of P1, P2 and 2nds respectively.

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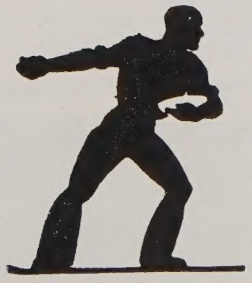

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Further information can be supplied on application to Box 990, Wellington.

GROW MORE WHEAT

New Zealand Must Be Self-Supporting In This Crop

By
R. B. TENNENT,
Director of the Fields Division, Wellington.

Wheat is our most important crop, and unless we make ourselves self-supporting in wheat and flour supplies, these vital foodstuffs may have to be rationed. Farmers are therefore urged to co-operate to the fullest extent in ensuring that in the coming season the acreage of wheat planted will not only be sufficient for a year's needs, but will also provide a surplus against future contingencies.

NEW Zealand's yearly requirement of wheat averages about 288,000 acres. During the last two seasons we have produced much less than this amount, although more than in the years just before the war. We should aim at a minimum of 300,000 acres to make up for shortages, to cover the possibility of poor crops, and, if we are so favoured, to produce a surplus.

Last year a drive was launched for the production of more wheat. The aim was to produce 300,000 acres, but it appears from estimates that only 258,000 acres were actually sown. In most districts the previous year's acreages were exceeded, but in some districts the acreage sown was less than that of the previous season.

From the estimates it appears that declines have occurred in the North Island, Southland, and Central and South Otago. Increases have been achieved in Marlborough and in the extensive wheat-growing areas of New Zealand—Canterbury and North Otago.

Next Season's Crop

How are we going to secure the planting of 300,000 acres of wheat in the coming season? Farmers are anxious to plant this area, but can they accomplish this objective? How will they be placed for labour and petrol, so essential for the production of a large acreage of wheat? Will there be sufficient fertiliser?

When Japan entered the war, we were immediately forced to make drastic reductions in petrol supplies. All-over cuts were made, leaving adjustments for consideration afterwards. These cuts caused much temporary inconvenience in the grain-growing districts where harvesting was in progress or about to start. Immediate mobilisation of many farmers and their labour further increased the difficulties of the harvest. Adjustments were soon made so that full petrol supplies became available and petrol will continue to be available as long as it can be obtained for the production of wheat.

Recent arrangements have been made by the Minister of Agriculture with the Army authorities so that men in training can be engaged for harvesting where there is a shortage of labour.

Proposals are also under way so that men will be released from the Army for the planting season. Thus, the main difficulties in the way of expansion of the acreage of wheat grown, namely, power and labour shortage, will be overcome. Small growers, in

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particular, will be pleased to know that it is the intention of the Government to organise, if necessary, the supply of essential machinery which will enable all producers to harvest their crop with the minimum utilisation of man-power.

Fertiliser Ration

Under the present rationing scheme, farmers growing wheat are entitled to 1 cwt. of superphosphate or its equivalent in other fertilisers for every acre they sow. When subsequently the land is sown to pasture, they are entitled to a further 1½ cwt. of superphosphate for every acre sown down. Steps are being taken to ensure that there will be sufficient supplies of fertiliser for all wheat-growers on the above rationed basis.

The main difficulties having thus been overcome, no hesitation is felt in appealing to farmers to increase their wheat sowings.

Expansion in the wheat acreage can be brought about by—

(a) Increased sowings by wheat-growers;

(b) Sowings by farmers who do not grow wheat as a rule and live in wheat-growing districts;

(c) Sowings by farmers in districts suitable for wheat but where wheat is not grown to any extent.

All these farmers can help.

The header-harvester has eased the burden of wheat-growing to an enormous extent. Increases in the production of wheat will be more readily obtained in districts where the header-harvester can be used. Some wheat-growers in these districts each year are producing as much wheat as they can handle or they are sowing all the land on the farm that is in a suitable condition for wheat. We do not expect more from these farmers. But there are many farmers in header-harvester districts who grow very little or no wheat and who have quite large areas in pasture for the production of fat lambs and other commodities, and it is difficult to foretell the immediate value of their production. It is to these farmers that we make the strongest appeal. They are in the best position to bring about the desired increase in production of wheat.

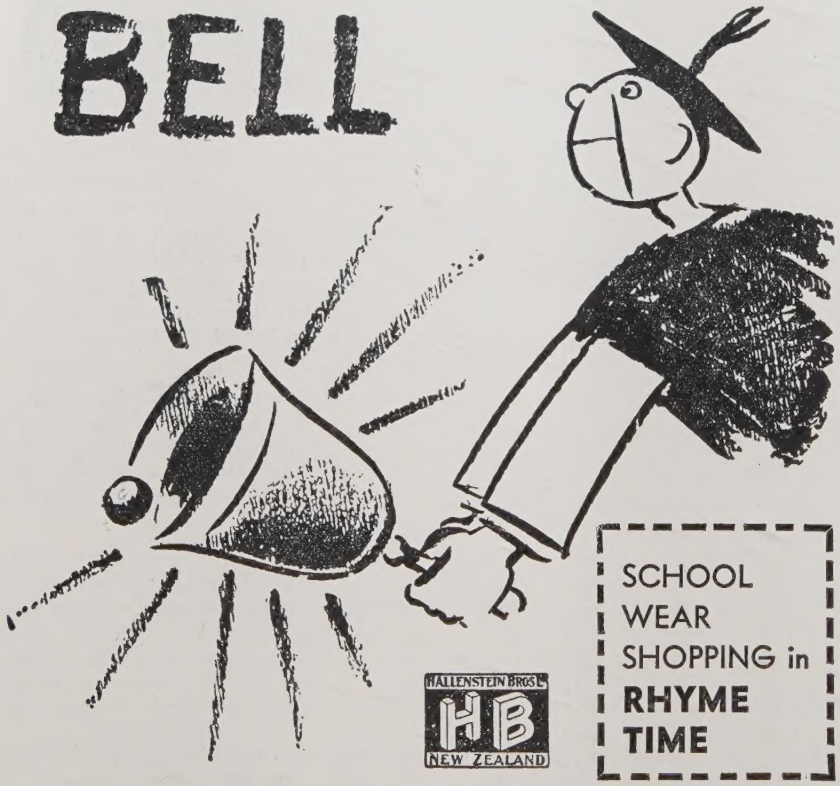
Farmers in districts where wheat is not grown to a large extent, but where it can be grown and harvested satisfactorily, can help also. In such districts as Hawke's Bay, Wairarapa, Marton, Southland, and South Otago wheat has been and can be grown.

At present, it appears that wheat is the most important food commodity that the New Zealand farmer can produce. We are becoming concerned at our increasing store of meat and butter, while we are threatened with a shortage of wheat, our most important foodstuff. Let us therefore produce more wheat.

Varieties to Grow

Farmers wishing to grow wheat, who have not had much experience, are advised to contact the Fields Division officer of the Agriculture Department serving their district for any information they may require regarding the

DING DONG BELL



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growing of this crop. For their information, the list below shows the varieties of wheat recommended for sowing in the various districts.

NORTH ISLAND.

(a) Northern counties of higher rainfall should retain Major, the present variety.

(b) Hawke's Bay, Waipawa, etc., should use S.S. Tuscan, but some Fife-Tuscan should be obtained from Canterbury to replace the old strain.

(c) Rangitikei and West Coast—Jumbuck should be the standard variety, but Tainui should be tried with more freedom. Where those two varieties are difficult to harvest, Cross 7 should be used. Tainui is the most suitable for late sowings.

(d) Wairarapa.—Cross 7 should be used to replace Tuscan on the better Tuscan country, although it should not replace any more Hunters. Fife-Tuscan should be tried on the pure Tuscan country, and Tainui could be tried with caution where spring sowing is required.

NELSON.

Major is still the variety to use. Dreadnought may be worth trying on a small scale.

MARLBOROUGH.

(a) Awatere.—Cross 7 or Jumbuck, depending on price and ease of harvesting.

(b) Marlborough.—Tuscan should be used on the light plains land. Fife-Tuscan could be tried.

(c) Wairau Plains.—Cross 7, Major, Jumbuck, and Marquis only, depending on price and ease of harvesting.

CANTERBURY.

Tuscan is the best variety on the lighter land, but Fife-Tuscan should be tried. Cross 7 is the best wheat on good Tuscan or light Hunters country. For the heaviest land use Hunters, or Holdfast if Hunters goes down. For spring sowing, Tainui is probably the best variety to use.

WAIMATE SOUTH AND WAITAKI.

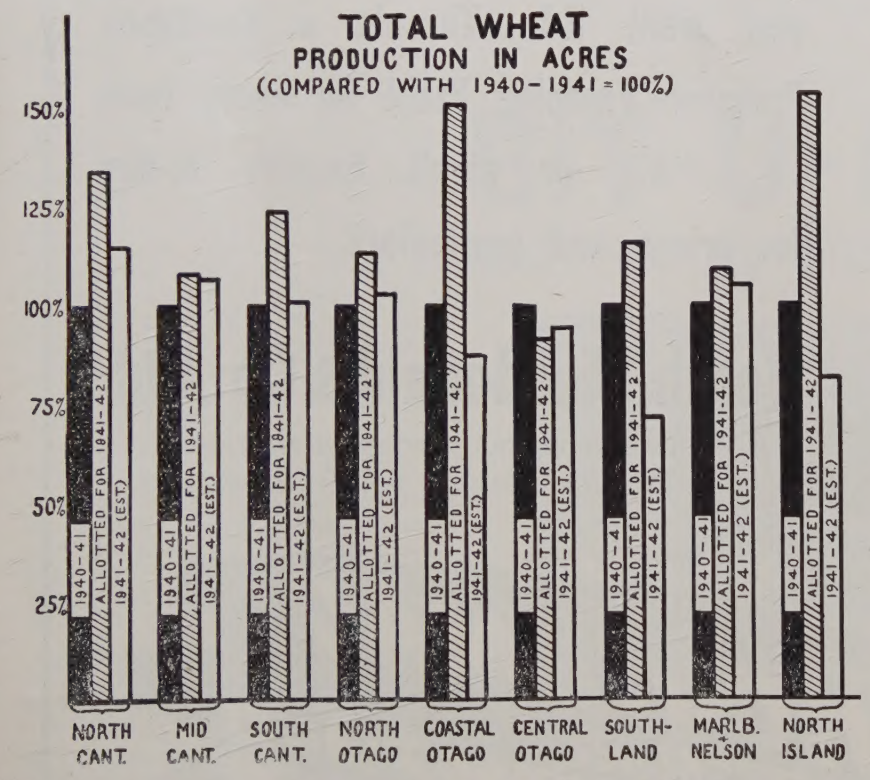
Dreadnought is the best variety for all localities where it can be grown. On the river bank, Cross 7 should still be tried where Tuscan is usually grown.

CENTRAL AND SOUTH OTAGO AND SOUTHLAND.

(a) Central Otago.—Cross 7 is satisfactory, but Jumbuck should be tried again.

(b) Waihemo.—Cross 7 should be continued.

(c) Taieri and all Southern Districts.—Cross 7 is the best wheat to use, but Jumbuck and Taiaroa should be sown when season has become too late to sow Cross 7.



The total wheat acreage for the various districts in the 1940-41 season is shown in each case as 100 per cent. The notched columns show the allocations for the various districts, which if achieved would have resulted in the production of 300,000 acres of wheat. The plain columns alongside show the estimated actual production for the 1941-42 season.

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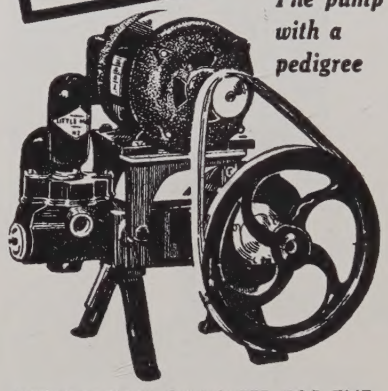

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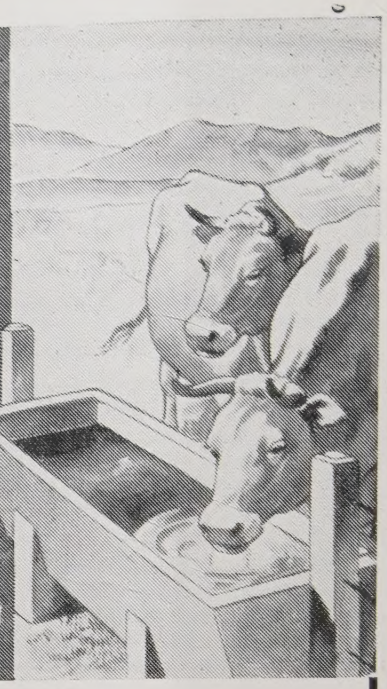

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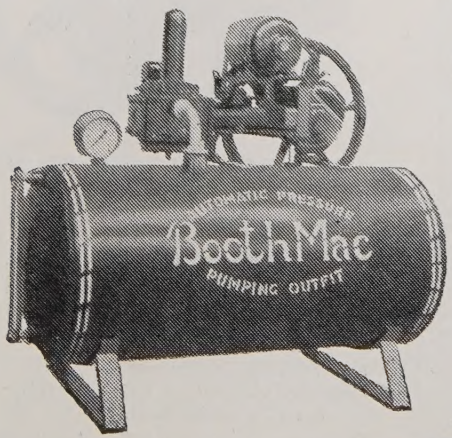

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Trials Show That

Molasses Will Reduce After-calving Complaints

— By —
A. A. BLAKELY and H. F. DEWES, Morrinsville District Veterinary Association

The most hopeful feature about ailments of dairy cattle at and shortly subsequent to calving is that the incidence of ailments varies from year to year and from farm to farm.

Feeding conditions vary with the vagaries of our climate and the whims of individual farmers. We associate these different feeding conditions with the variation in disease incidence. In particular we associate a low molasses with a high consumption of molasses in the winter and spring months. We base our opinion on observations made in the Waikato during the 1940-41 and 1941-42 seasons on some 90,000 cows running on some 700 farms.

Seasonal Variation

The two seasons mentioned have been entirely different. The 1940-41 season began with an average autumn, followed by a very mild winter and excellent spring, and in this season there was a high incidence (up to 50 per cent.) of milk fever, "grass staggers," and acidosis. The 1941-42 season began with a good autumn, followed by a long, cold winter and a very poor spring, and there was little milk fever, much "grass staggers," and still more acidosis.

1940-41 Season

Taking the 1940-41 season, with its high incidence of milk fever, cows came into the winter in only fair condition, and it during the good winter and went ahead rapidly in the ground-and spring. The most important feature about this sequence of events were—

1. Cows were not losing condition during the calving and in the subsequent period.

2. The very rapid and abundant spring growth—high protein and low carbohydrate content—ensued.

Our observations were that the highest incidence of milk fever was evidenced on those farms where feed grew most rapidly in the early spring. This was even noticeable where excessively large quantities of fertilizer were applied, for example, those using 30 units of milk fever. In a herd of 120 cows where 1 cwt. of superphosphate per acre was applied.

Yet a few properties had practically no milk fever. These could be divided into two groups—

1. The poorer type of farm where soil fertility, stocking and production were low.

2. On some exceptionally good farms. Interestingly these farmers were keeping their cattle differently. Either or—

(a) Keeping a good quality hay in front of their cattle right up to the new spring.

(b) Removing well-matured pastures for topping, rather.

(c) Supplementing the feed supply with molasses.

(a, b and c were in many cases concurrent.)

The conclusions we drew from these observations were—

1. That cows which are not losing condition and are obtaining a diet high in protein and low in carbohydrate are very susceptible to milk fever. This conclusion is in keeping with the knowledge that an abundance of sugar (carbohydrate) is necessary for the maximum utilization of mineral matter in particular calcium. Milk fever is in fact a temporary deficiency of calcium.

2. That molasses is a suitable concentrate to make good the unbalance between protein and carbohydrate at such seasons.

BIT-U-MAC . . .

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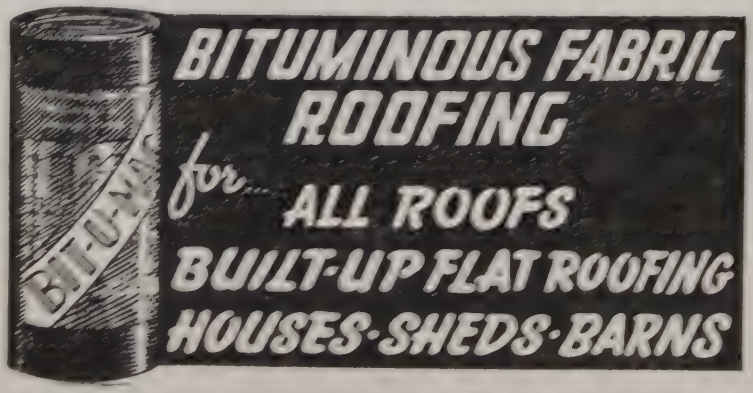

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1941-42 Season

The 1941-42 season was much different. Cows were in exceptionally good condition right up to the winter, but inclement weather followed and persisted for some four months, and this caused a very rapid and prolonged reduction in grazing. Furthermore, most of the hay available was of a very indifferent quality because of a wet summer, and hence, cows lost condition very rapidly just at the calving period.

The incidence of uncomplicated milk fever under these conditions was practically nil—much later in the season, when feed conditions were greatly improved, uncomplicated milk fever was quite common—but the incidence of milk fever, complicated by acidosis, grass staggers, and acute indigestion, was high. The latter complaints alone were similarly common.

Yet again, some farms were singularly free of trouble. These exceptions were:—

1. Those farms which had an abundance of good hay and roots and fed them out.

2. Those farms where the feeding of molasses was started early and continued throughout the spring.

3. A minority of farms which had an abundance of grazing.

The highest incidence was on those properties which

(a) Were overstocked;

(b) Had practically no good hay and little grass (excessive quantities of silage may have been used on some of these properties);

(c) Where no molasses was fed.

The conclusions we drew from these observations were:—

1. That cows which are in good condition in the autumn and then subjected to short commons rarely develop uncomplicated milk fever at calving time.

2. That such cows are very susceptible to complicated milk fever.

3. That such cows are very susceptible to acidosis and grass staggers.

4. That poor quality hay accentuates the harmful effects of reduced grazing. We are of the opinion that poor hay, especially mouldy hay, is a definite cause of complications in milk fever, and a precipitant of acidosis and grass staggers.

5. That molasses is an essential in seasons where there is little grazing, and especially so if the hay is of poor quality. The probable explanation of its usefulness lies in the fact that its sugar-content enables the cattle to utilise the fat on their own bodies with impunity. In its absence a ketosis develops.

Early in the 1941-42 calving season, as a result of the previous season's observations, we advocated the use of molasses in abundance. Surprisingly enough, some farmers carried out these instructions. The improvement in the condition and health of their cows was equally surprising. Even in those instances where the use of molasses was delayed until trouble was very evident, similarly good results were obtained.

Herd Examples

To quote herd examples:—

Herd 1.—Herd of 120 cows, best dairying land. High level of production. Practice to drench all third calves and older with 6 lb. of molasses over a period of three days before calving. Only case of milk fever in three years was one this year which he omitted to drench. No other after-calving complaints.

Herd 2.—Herd of 98 cows. Undulating country of medium production level. Attended 15 cases acidosis and grass staggers in 14 days. After the

adoption of feeding molasses only subsequent trouble was two cases of milk fever.

Herd 3.—Herd of 85 cows. Undulating, medium producing country. Very poor, mouldy hay. Four cows found dead in paddock within one week ("grass staggers"). Two more treated within that period. Started to feed molasses in large quantities, and had no further cases. The general improvement in the herd was immediate and good. It may be added that in those herds which had a high incidence of acidosis and grass staggers first and second grade milk was the rule. The grading was restored to normal within a short period after the cows were restored to normal health by the molasses. This latter effect was recorded in numerous herds besides the one in question.

Herds 4 and 5.—Two herds on best dairy land; 250 cows in all. Practice over a period of years to have molasses available to the cows right throughout the winter and spring. Sum total of after-calving complaints in the last three years: Seven cases of milk fever.

Herd 6.—Herd of 55 cows on 48 acres good dairying country. No roots, poorly preserved hay, and practically no grazing. Eight cases of complicated milk fever, five of which died. Fourteen other cows developed either grass staggers or acidosis. Trouble was eased to a certain degree by purchasing roots, but the herd never returned to normal health. Udder trouble was rife. No molasses was fed.

Herd 7.—Herd of 53 cows on 51 acres of good dairying country. Very poor hay, practically no grass, and plenty of ensilage of fair quality. Eleven cases of complicated milk fever, six of which eventually died, the other five took months to return to normality. Much trouble with mastitis until well after Christmas. No molasses fed.

Herds 8 and 9.—Two herds of 85 cows each; average about 350 lb. of fat on first-class country. In the last three seasons one of these herds has had one case of milk fever and one of acidosis; the other property has had four cases of milk fever and one of grass staggers. The practice of the owner of these two properties is to have an excess of grazing rather than the bare minimum, and to feed out hay and silage from early winter to late spring. His hay is saturated with molasses on the previous day. Molasses is also available in concrete troughs, and is used on the ensilage.

Herd 10.—This herd of 120 cows is another high producing one. Early in the spring one cow was treated for grass staggers, and another was found dead in the paddock. Molasses was recommended; this was carried out for a fortnight, the cows getting about ¾ lb. per day. The trouble ceased. Over two months later we were called and found 27 cows sick. All of these had one or more quarters affected with a non-febrile form of mastitis. All evidenced acidotic symptoms, some in an acute form and one in the acute nervous stage bordering on the so-called grass staggers. Molasses was again resorted to, these particular cows consuming in 10 days some 5 cwt. of block molasses. Some 18 days later inspection revealed that all the affected quarters except one (a chronic case of some years' standing) were normal and back to full milk. All cows had recovered from their acidotic symptoms and were in excellent condition. A similar correlation between the acidotic outbreaks and the grading of the milk, as previously mentioned, was found here.

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Conclusions

In the foregoing we have endeavoured to select a few herds which are typical of the many. Without exception, we have found that an abundant supply of molasses will reduce after-calving complaints. We have not experienced any harmful effects from a large intake of molasses. Cows will consume large quantities of it during the first few days they have access to it; then, their immediate wants being satisfied, they consume it rationally. This is an invariable finding.

As to the best method of feeding molasses, there is some controversy. No doubt, the best return is obtained by spraying it on the hay, either while feeding it out or by allowing it to soak into the stack overnight. This method requires a little effort, and is time-consuming. Quite satisfactory results are obtained from the solidified blocks. The molasses itself may be placed in containers and put out in the paddock. The disadvantage of the latter method is that the more timid cows do not get their share. It appears that quantities of as little as ½ lb. a day per cow have the desired effect.

We consider that molasses has its use in every year and on every farm. In years when there is a good spring its purpose is to balance the excess of protein. By so doing, the incidence of milk fever is reduced. This may be the result of the increased absorption of mineral matter, particularly calcium, in the presence of sufficient sugar.

In years such as the 1941-42 season, with its scarcity of grazing, molasses ensures the proper utilisation of hay, and appears to allow even poor hay to be used with a degree of safety. Furthermore, it allows cattle to utilise fat from their own bodies properly.

We record here that a high proportion of complicated in relation to uncomplicated milk fever cases occur under the same feeding conditions as does a high degree of acidosis and grass staggers, but this phenomenon does not come within the scope of this paper.

We have tried to show that molasses is a beneficial feed supplement, that a beneficial effect is obtained in both good and poor seasons and that its effect is shown not only in the cow herself but in the quality of her product, butterfat.

Radio Broadcasts

RADIO talks to farmers will be given from Station 1YA, Auckland, at 7.15 p.m. on the following dates:—

March 30.—"The Culture of Subtropical Fruits," by Mr. A. M. W. Greig, Citriculturist, Department of Agriculture, Auckland.

April 6.—Easter Monday: No talk.

April 13.—"Kikuyu Grass: Its Use and Misuse," by Mr. P. S. Syme, Instructor in Agriculture, Warkworth.

April 20.—"The Story of Lime," by Mr. W. Alexander, Auckland.

April 27.—"Young Farmers' Club Session," by Mr. D. S. Ross, Dominion President, Federation of Young Farmers' Clubs.

Pig Industry Broadcasts.

THE following programme of radio broadcasts will be given under the auspices of the National Pig Industry Council during April:—

1YA, Auckland, April 16, 7.15 p.m.—"Pig Housing," by Mr. C. P. Harington, Supervisor to the Waikato District Pig Council.

2YH, Napier, April 9, 7.30 p.m.—"Wintering of Pigs," by Mr. I. H. Owtram, Supervisor to the Tairawhiti District Pig Council.

2ZA, Palmerston North, April 20, 7.30 p.m.—"Pig Housing," by Mr. J. L. Marsdon, Supervisor to the Wellington District Pig Council.

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Neglected Harvesting Machinery

The Fifth Column of the Harvest Front

By J. M. SMITH,
Fields Superintendent, Auckland.

FROM October until March in each season hardly a week passes without one or more news items similar to the following appearing in the daily press:—

Hamilton, this day.
Mr. ....., who was seriously injured in a haymaking accident on Tuesday, died in the Waikato Hospital last night without regaining consciousness. He leaves a wife and two sons.

(O.C.) Otorohanga, this day.
A young boy, ..., suffered serious injuries on Saturday when a hay stacker fell on him while he was working on a neighbour's farm. His condition is serious.

(O.C.) New Plymouth, Wednesday.
A farm hand and a lad, the son of the farmer, were seriously burned on the farm of ..... at Midhirst on Monday when a hay stacker came in contact with a power line.

(O.C.) Te Aroha, Saturday.
When a hay stacker fell on him while he was working on his farm yesterday afternoon Mr. ..... suffered a compound fracture of the leg. He was brought to the local hospital, where his condition last night was stated to be fairly serious.

Masterton, this day.
Through a rope breaking and a stacker collapsing on the farm of ..... at Clareville on Tuesday last an employee of Mr. ..... was taken to the Masterton Hospital suffering from concussion. His condition is serious.

(O.C.) Tauranga, Monday.
Mr. ..... was seriously injured this morning when a stacker on the farm of a neighbour where harvesting operations were in full swing collapsed and fell on him.

IN addition to these major disasters of the harvest fields, there must be many hundreds of minor mishaps to individuals taking part in the operations of hay and silage making—mishaps which are painful to the person concerned and which, through the temporary loss of a human unit in the field, slow up the work of the harvest. Again, there are many holdups (some of a major nature) through some weakened part of the machinery giving way—through a worn-out bolt or cotter pin breaking, through a splintered sweep tooth or pole giving way, or through that piece of wire that was used to mend the implement (or harness) last season wearing through. All of these mishaps are of economic importance through holding up important seasonal work—work that is largely dependent upon the weather, which, like time and tide, waits for no man. Under the present conditions of manpower shortage on the farm, these delays are more serious than normally.

While some of these mishaps are purely accidental and, even with every care and attention, are unavoidable, the majority are probably due to some degree of oversight, carelessness, or neglect. Life, property and time are all too valuable to be subject to any unnecessary risk, particularly when, at little inconvenience, at small cost and on wet days when little else can be done, the source of the danger can be largely removed.

Implements left out to deteriorate are a source of danger when harvesting begins.
[O. Walker, photo.

Check Up On Machinery

During harvesting a note should be made of all matters in connection with harvesting gear that require attention. A mental note is useless, as memory can be a fickle jade. Then, when harvesting is completed, all gear should be subject to a complete overhaul before being stored away for the winter. All key bolts, etc., particularly on stackers and and hoists, should be scrutinised most carefully for signs of wear or flaws, and where weaknesses are revealed replacements should be made immediately. All ropes and guy

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Christchurch—26 Queen's Avenue, Fendalton. Telephone 24-739

wires and their attachments to masts, frames, etc., should also be carefully examined and the necessary replacements made. Woodwork of all gear should be inspected, particularly those parts where iron work and bolts pass through the frame, to see that it is standing the wear and tear and will not, next season, when the first heavy load is placed upon it, give way, with disastrous results to life and property.

Finally, a good oiling up of all moving parts and the painting of woodwork should be undertaken as the last job. The usual answer to this is, of course, "I haven't the time." Surely, when the very lives of yourself, your sons, or your daughters may be at stake, time can be found to make sure that your harvesting unit is in a safe and satisfactory condition.

Harvesting can be done much more effectively if the gear is in first-class order.
[H. Drake, photo.

SUBSCRIPTION RATES.

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Care in the Field

In the harvest field itself much more care can be exercised than is often the case. Seldom, if ever, is the machine itself at fault. Manufacturers, particularly of stackers and hoists, see that there is an ample margin of safety as far as stresses and strains are concerned, but no manufacturer can be held responsible for poorly placed or driven pegs for the guy wires, for fair wear and tear on any moving part, or for the erection of a stacker under a high-powered power line. These are factors that are largely in the farmer's own hands, and it is the duty of every employer and employee on the farm to see that safety is made the first essential on the harvest front.

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There is still a certain amount of carelessness or lack of knowledge about the castration of pigs. This article describes the details necessary in carrying out the operation in order to get the best results.

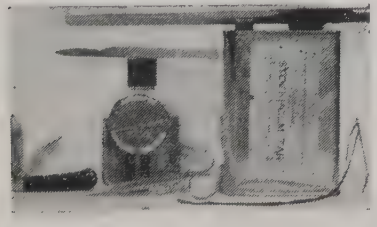
THE CASTRATION OF PIGS

Contributed by the
LIVESTOCK DIVISION

FAULTY methods of castration are responsible for a considerable loss of otherwise good pigs. Carelessness in carrying out the work may result in infection of the wounds, and carelessness in not carrying out the work at the proper time may result in indiscriminate breeding from an unsexed animal from which it was not intended to breed. Delay or postponement of the operation may result in the growth and development of a class of "staggy" animal, which is not desired in any branch of the porker or baconer trade.

Reasons for Castration

The operation of castration is carried out primarily to unsex the male animals. The term is sometimes applied to the removal of the reproductive organs in the female, but here "speying" is a better term. As speying of pigs is not frequently carried out in New Zealand, no attempt will be made to describe it. It is important to note, however, that speying of female pigs is carried out in some countries, as it is considered that the speyed animals settle down better and fatten more easily, and that the resulting carcass is of better texture and cures into better bacon.



Suitable equipment for the operation is necessary to ensure the best results.

There is not the same necessity for speying the female as there is for the castration of the male pig. If any reasons are required to cover the castration of male pigs, it may be sufficient to say that the castrated animal fattens more rapidly and makes a better carcass of finer texture, either pork or bacon. The main objection to using the flesh of an uncastrated animal lies in the peculiar sexual odour which taints the flesh and renders such an animal of very low market value, even in the chopper class. Castration late in the life of the pig is also objected to for the same reason.

Improper or partial castration results in the production of "stags," which may be condemned for a similar reason. The unpleasant odour in the meat resulting from the use of the flesh of a boar is particularly noticeable during the cooking. In a young animal, slaughtered two or three months after castration, odours and flavours have disappeared, but this is not so in older mature boars which have been used for service. Odour does not develop when castration takes place before weaning. Early castration is recommended by the Department, and there are many other reasons

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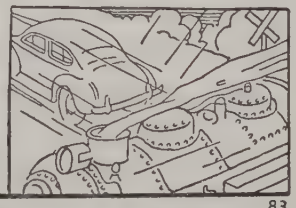

83

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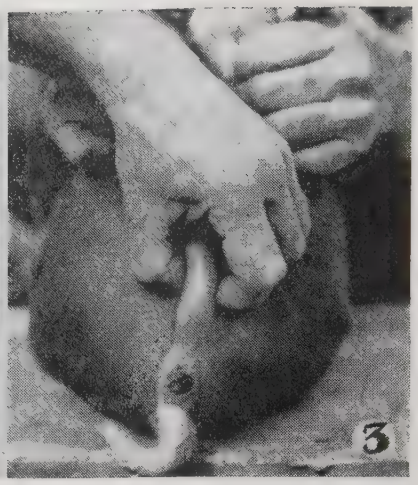
WRONG.—The wrong method of holding the pig.

RIGHT.—The correct method of holding the pig. Note that the hands are held closely together, thus exposing the scrotum so that the skin is not tightly stretched.



Holding the testicle before making the incision in the skin.

Making the cut through the skin. Note how the fingers and thumb hold the testicle in position.

The incision in the skin.

The testicle released.

why it is best done at this stage. Among these may be mentioned the ease of handling the smaller pigs, the lesser check to the animals' growth, and the better healing of the wound in young animals.

Best Age

The best age for castration is between three and six weeks of age, certainly before the litter is weaned, which will enable the wounds to be healed up before weaning takes place. This is most desirable to prevent a check in the growth and development of the litter, such as would occur if castration were carried out after weaning. All that is necessary in the way of preparation is the removal of the sow for a few hours before operating, and especially at the time of operating. The operation is best performed when the pigs are comparatively empty to prevent any complications, such as rupture. It is necessary to remove the sow to an enclosure, as when the pigs are handled and begin squealing, the sow generally becomes upset if within hearing range. The litter should be in a clean pen, and either returned to the pen after castrating, or placed in a clean grassy paddock to prevent infection of the wounds. The operation is best performed on a cool day, but it is understood that if the pigs are to be castrated at the age stated, it will be necessary to operate at all seasons of the year, so the most suitable day needs to be selected.

A suitable castrating knife should be kept specially for this purpose. The photograph shows knives suitable for

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Withdrawing the testicle.

Showing the attachments at the back of the cord.

Cutting the attachments.

Scraping of the true vascular cord is adopted rather than cutting in order to avoid bleeding.

Repeating the operation on the other testicle.

The operation completed.

the operation. A dirty penknife which has been used for all and sundry work on the farm is not likely to do the job efficiently or to prevent infection of the wounds. It is frequently impossible to sterilise such knives, and a ragged sawn incision rather than a clean cut may result. Such work retards healing, permits infection, and allows abscesses to form at the seat of operation.

Surgical methods should be followed as closely as possible. Cleanliness of the skin at the site of operation is as necessary as cleanliness of the operator's hands and finger-nails. Clip the finger-nails, wash and scrub hands in an antiseptic wash, steep the knife in an antiseptic solution, or sterilise it by boiling for a few minutes in preparation for the work. Having carried out the preliminary preparations of the surgical equipment, and having the pigs suitably prepared in their sty, the next step is to proceed with the operation itself.

Operation Described

Assuming that an assistant is available to hold the pig, the operator's hands and instrument should be kept clean and the work carried out as aseptically as possible. The assistant seizes a pig by one hind leg, carries it to the operator, and holds it firmly in one of the positions shown in the photographs. The scrotal sac is exposed to the operator, who cleans the skin with cotton-wool and an antiseptic solution already prepared. The first testicle is grasped between the

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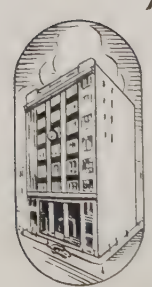

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thumb on one side and the first two fingers on the other side, and the skin over the testicle is tensed before the incision is made.

A single bold incision is made through the skin and outer coverings of the testicle, when the organ is fully exposed for removal, as shown in the photographs. Certain fibrous attachments at the posterior part of the cord are severed as shown, the true spermatic cord containing the larger blood vessels being then severed by a scraping or sawing action of the knife. In this way, haemorrhage from the cord is practically eliminated. In older pigs or in large animals, the true cord is severed by an emasculator, which possesses a cutting edge near the testicle and a crushing edge on the cord nearest the body. In young pigs, bleeding is of little concern, but cleanliness of the site and throughout the operation should be strictly observed.

The second testicle is removed in a similar manner through a second incision, but care should be taken not to insert the fingers into the incision already made. The operation site now reveals two clean cuts, which are left open to provide drainage from the wounds. It is important to ensure that the cuts are large enough to provide good drainage, and that they are placed at the lowest part of the scrotum when the animal is again standing on its feet. In the case of a weaner pig the cut will need to be about 1½ inches long. It is a common mistake for owners to make the cuts too small, the testicle emerging under the pressure of the fingers and thumb. Another common mistake is to make the cut too high towards the tail, in which case a pocket is formed where blood collects, and later, infection is imprisoned and an abscess results.

There are many dressings for such wounds on the market, more particularly for use in the castration and docking of lambs. Friar's balsam and carbolised oil dressings may be used, but if the wounds are lightly douched with a weak antiseptic wash, this is all that is necessary. A 1 per cent. solution of carbolic, Lysol, Jeyes, or Condy's fluid may be prepared by mixing two tablespoonfuls of the antiseptic in five pints of water. This antiseptic lotion will be strong enough to pour over the wounds for cleansing purposes, and, being weak, will not retard healing or cause any irritation. No irritant or strong caustic or antiseptic should be used, as this will retard healing, and, if so, infection may follow. Many owners depend upon an application of Stockholm tar to the wounds, although sealing of the wound by a tar application, thus preventing drainage from the wound and probably imprisoning infection, is not good surgical practice under clean conditions. It may prevent a more serious infection under insanitary conditions, such as occur during the winter months.

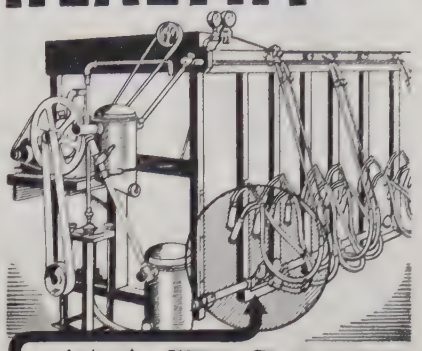
Abscess Formation

The most common sequel to castration is the formation of abscesses of various types and sizes. Sometimes the severed end of the cord is infected; an abscess forms in this region, and the condition known as schirrous cord develops. As the main object of this article is to prevent the formation of abscesses in the wounds during the healing stages, it is necessary to stress again the necessity for strict cleanliness at each stage of the operation. Included in the photographs will be seen pigs affected with abscesses of various sizes, not only in the living animal, but right through to the dressed carcass, and after removal of the abscesses from the carcass. Situated as these abscesses are, it will be readily seen how such lesions spoil the ham cuts on either side. The carcass must be degraded, if not entirely condemned. No compensation is paid, and the result is a dead loss to the owner. Frequently, smaller and secondary abscesses may be found in the abdominal cavity, necessitating the entire carcass being condemned and sent to the digester.

It is a serious economic waste to raise an animal to such a stage and then see it consigned to the digester. Scrotal abscesses are preventible, and should be prevented. It is obvious where the fault lies, and their existence is a direct reflection on the producer who markets pigs thus affected.

(To be continued.)

KEEP HERDS HEALTHY...



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New Harvesting Technique with Cereal Trials

Sampling Methods Necessitated By Use of Header-harvester

LARGE numbers of yield trials with cereals are conducted each year by the Fields Division of the Department of Agriculture. Wheat variety trials make up a large proportion, for the Fields Division is responsible for the field trials of new introductions and new varieties bred by the Wheat Research Institute. and it acts in close co-operation with this body on all matters connected with wheat growing. Work on barley and oat varieties in co-operation with the Agronomy Division of the Plant Research Bureau is on a somewhat smaller scale. In addition extensive manurial trials on all three cereals are being undertaken, largely as part of the comprehensive research into the value of serpentine superphosphate. Trials are also in progress with the irrigation of wheat. which practice is likely to become of great importance following the completion of the new irrigation schemes in Canterbury.

By P. B. LYNCH,
Assistant Crop Experimentalist,
Fields Division, Wellington.

Cereal trials therefore form an important section of the experimental work of the Fields Division. These trials consist of a number of plots (usually about 48), each of which is 2 chains long and 7 coulters wide. The total area taken up by a trial is therefore about two-thirds of an acre. Previously, the procedure in harvesting these plots has been to cut each with a binder, stook the sheaves on the plots from which they came, and later to thresh them with a small "tin mill" which was mounted on rubber tyres for road transport behind a tractor.

This method, however, proved a source of trouble when it was applied to those farms which used a header-harvester, for it meant that two harvesting methods were in use in the same paddock. Further, the presence of experimental stooks in the paddock sometimes interfered with the subsequent cultivation and stocking of the stubble. Consequently, with the ever-increasing area threshed by the header-harvester, it became essential to look for other methods of harvesting the trials, and of these methods, sampling has proved the most promising.

How Yield Is Estimated By Sampling

The plot length of 2 chains is first divided into eight sections each of 16 feet, allowing 2 feet at either end for irregular finishes in drilling. In each of these sections one sampling unit of 2 ft. is selected at random, and the five centre coulters at this point are cut out with a sickle. Four of these units per plot form a sample, of which there are two per plot. Each sample is made into a sheaf, labelled, bagged, and transported to Lincoln for drying and threshing.

Placing the metal sampler at the marked position in the section.

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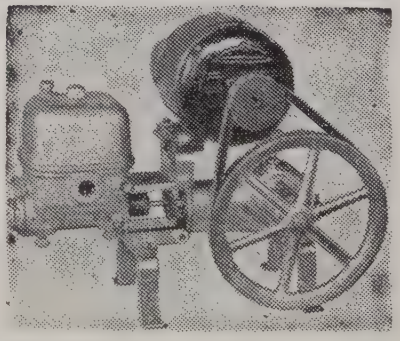

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In the 1939-40 season three trials were also threshed by the "whole plot" method for comparative purposes. Results from these trials are given below:—

Type of Trial and Varieties Included.	Yields in Bushels per Acre (adjusted for moisture).		
	Whole Plot.	Sampling.	Difference.
1. Wheat Variety Trial:			
Hunters	56.7	53.9	+2.8
Dreadnought	66.1	64.5	+1.6
Holdfast	53.7	49.2	+4.5
Victor	58.9	53.2	+5.7
2. Oat Variety Trial:			
Gartons Abundance	43.9	41.7	+2.2
Markton	44.4	41.9	+2.5
Anthony	43.9	42.4	+1.5
3. Barley Variety Trial:			
Archer Spratt:			
No manure	36.5	35.3	+1.2
1 cwt. super	38.5	35.2	+3.3
Plumage Archer:			
No manure	33.7	33.3	+0.4
1 cwt. super	38.6	35.5	+3.1
Goldthorpe Spratt:			
No manure	38.4	34.8	+3.6
1 cwt. super	38.7	35.7	+3.0

It will be noticed that there is a tendency for the "whole plot" yields to be greater than the sampling yields by two to three bushels per acre. This effect may be directly traced to the inclusion of the two outside coulter rows in the former yields. These rows tend to yield higher than the remainder due to greater freedom from competition and therefore greater root and tillering space which the width of the two coulter rows between plots allows.

Disadvantages of Sampling Technique

Sampling introduces another error, namely, "sampling error," which is a measure of the difference between the estimate of the plot yield and its actual yield as would be determined by whole plot threshing. Its size is a measure of the efficiency of the sampling method, and for this reason sampling error is estimated on all cereal trials. To do this, it is necessary to have the weights of a minimum of two sampling units from each plot, and, for convenience in threshing, these are obtained by bulking eight sampling units into two lots of four each.

The other disadvantage of a sampling method is the tedious nature of the field operations, but this has been largely overcome by efficient field technique.

Advantages of Sampling Technique

(1) It gives less interference with farming operations generally. This subject has been outlined previously.

(2) Economy. Under the present conditions, the considerable saving in petrol, as well as labour, is of particular importance.

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Taking the material from the area enclosed by the metal sampler.

(3) Flexibility. This is one of its greatest advantages, and for this reason a sampling method may give more accurate results than whole-plot threshing. For instance, earlier maturing varieties or treatments may be cut out when they are ready and before they suffer loss from wind or bird damage. With whole-plot harvesting, all the plots are cut on the same day.

(4) Trials in remote districts can be harvested by sampling and the results analysed statistically. Previously, the Departmental mill could not visit such trials.

(5) Plots may be readily subdivided for subsidiary treatments.

(6) The edges of plots and outside coulter rows, and patches obviously influenced by some external factor, may be rejected. This ensures greater accuracy.

(7) A lodged and tangled crop which cannot be cut with the binder may be satisfactorily harvested by sampling methods.

(8) Losses in stook may be largely avoided.

(9) A sampling technique is essential where developmental studies, such as insect counts, tillering counts, etc., are carried out.

It will be seen that most of the advantages of a sampling technique are of a practical nature, and that in many cases greater accuracy may result from sampling in the sense that a better measure is obtained of the yielding ability of a variety or treatment under the most suitable conditions for such variety or treatment. This fact tends to act in the opposite direction to the loss of accuracy in actual measurement resulting from sampling.

Summary

(1) Sampling methods for the estimation of yield of cereal trials have many advantages of a practical nature applied to co-operative trials on farms such as those carried out by the Fields Division. Their main disadvantage is the inclusion of an additional source of error in the yield estimates, which results in a certain loss of information.

(2) A reasonably efficient and practical field technique is outlined, and the results obtained by using this technique are considered satisfactory.

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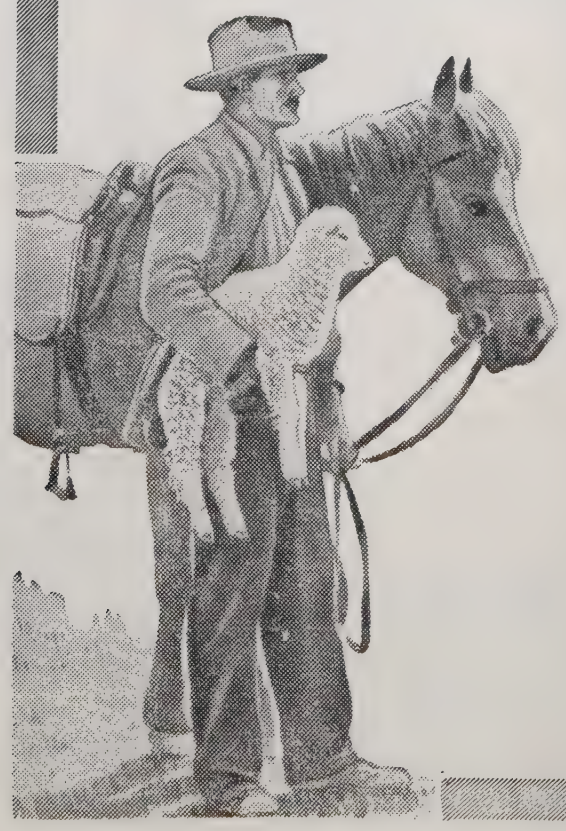

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Bacon Production Trials With Roots and Concentrates

By
C. E. BALLINGER,
Research Officer in Animal Nutrition,
Ruakura Animal Research Station.

A NUMBER of winter fattening trials have been conducted at the Ruakura Animal Research Station over the last two years, and at the time of these trials prominence was being given to one or more of the points on which these trials were based. In the autumn of 1940, for example, farmers were being urged to produce all the bacon they possibly could, and Australian barley was imported to encourage them to do so.

Information was then sought regarding the form in which the barley should be fed to the best advantage, and although this problem has been extensively investigated in other parts of the world, information from trials carried out on the spot—that is, where the problem arises—has more local appeal than trials done in other countries.

The merits of the various root crops were also receiving a good deal of attention, as it was obvious that if bacon production were to be greatly increased in New Zealand, more supplementary feed, both roots and concentrates, would have to be used in the autumn when the supply of dairy by-products rapidly decline.

Sugar beet, in particular, received a good deal of publicity, and excellent results were claimed from this crop. Economic considerations preclude the use of this crop for pig feeding in most countries, and for this reason there is less information on the crop as a pig feed than on other root crops.

The change-over to cheese production and the alteration in the requirements of pig meat by the British Government has, for the time being, reduced the importance of some of the points dealt with in this article on bacon production. Locally-grown barley, however, is used to some extent, while the limitations of sugar beet and other root crops as a fattening food for pigs need defining.

Fattening Trials with Barley and Swedes

The main object of these trials was to compare the methods of feeding barley that were known to be employed by farmers at the initiation of the trial.

Four treatments were decided upon, and the fattening ration per pig per day was made up of the following:—1 lb. of meatmeal, 1½ lb. of barley and swedes to appetite. The swedes were weighed and the refuse collected and allowed for. The only difference in the ration fed was the form in which the barley was offered, which was as follows:—

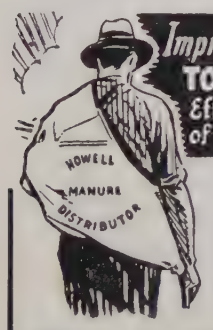
Group 1.—Barley meal.

Group 2.—Whole dry barley.

Group 3.—Steeped barley (soaked for 24 hours).

Group 4.—Boiled barley (boiled till the grains burst).

Forty-eight pigs in four groups of 12 were placed on trial and run in ⅕-acre grass paddocks. Group 4 was not placed on trial until five weeks after the other groups. The rate of growth



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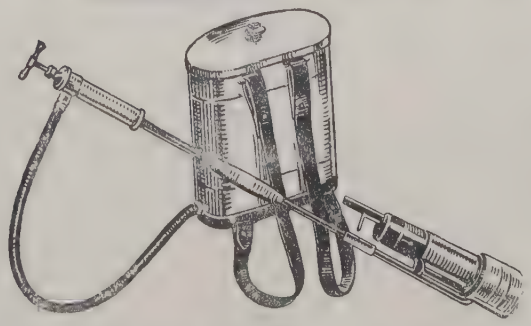

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in this trial was slow because of the poor consumption of swedes, and it is obvious that although swedes are an excellent winter feed crop for store pigs, their palatability is not good enough to induce the pig to eat a large quantity in addition to the basic ration.

The consumption of swedes per head per day reached a maximum of only about 18 lb. after 15 weeks' feeding, and at this point the swede crop ran out and had to be replaced by carrots. The difference in palatability between these two crops was seen by the fact that root consumption immediately rose from 18 lb. to 28 lb. per head per day.

As Group 4 on boiled barley did not go on trial until five weeks after the other groups, they were on swedes for 10 weeks compared with the 15-week period of the other groups. To arrive at a comparison of the progress of the groups before the change-over from swedes, the progress for the first 10 weeks of feeding is given below in Table 1. The basic ration of 1½ lb. of barley and 1 lb. of meatmeal is included in the calculation, "Feed units to produce 1 lb. of liveweight."

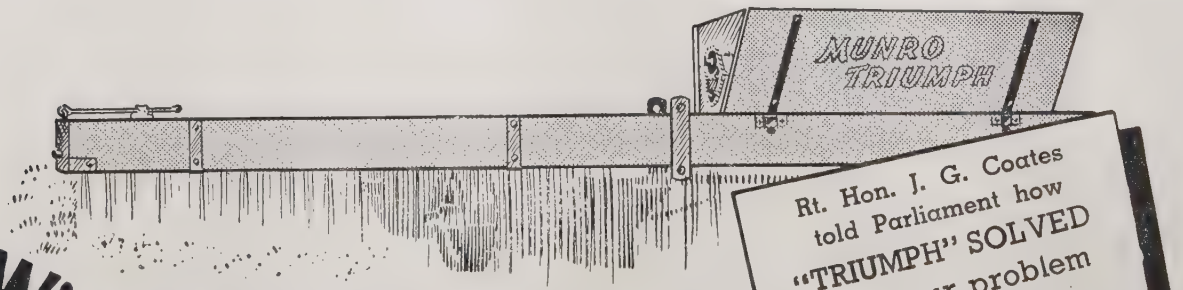
From the number of feed units required to produce 1 lb. of liveweight, it appears that barley in the form of meal, dry grain and boiled grain are equally efficient for pigs at the above weights. This is in line with American results, where it was found that pigs up to 150 lb. liveweight chew whole corn thoroughly and therefore make good use of it. The results obtained with the steeped grain are not so good, and it was obvious at the time of the trial that the pigs did not chew the steeped barley and that a good deal of undigested grain was passing out in the faeces.

As was previously stated, the slow progress of the groups made it necessary to replace the swedes with carrots, and towards the end of the trial a small amount of skim-milk was also given as the carrot supply ran out. In Table 2 the total feed units con-

TABLE 1.—LIVEWEIGHT INCREASE AND FEED CONSUMPTION FOR 10 WEEKS' FEEDING.

Group Barley fed as	1 Meal.	2 Dry grain.	3 Steeped grain.	4 Boiled grain.
Initial liveweight (lb.) ..	68.8	68.5	68.8	66.1
Final liveweight (lb.) ..	111.0	111.2	104.8	105.6
Increase 10 weeks (lb.) ..	42.2	42.7	36.0	39.5
Swede consumption (lb.) ..	528	638	604	492
*Feed units to produce 1 lb. liveweight	5.4	5.6	6.5	5.7

* 1 lb. of meals = 10 lb. of roots.



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sumed, the liveweight increase and the units to produce 1 lb. of liveweight are given.

The results obtained by the trial serve to confirm the results obtained in other countries, and while there is some variation in the amount of food constituents eaten, the general trend is that pigs over 150 lb. cannot utilise whole barley as readily as meal or as the boiled product. Whether or not it pays to grind or boil the grain depends on the cost of grinding and boiling, and must be decided by the farmer himself. With barley meal as the standard of comparison, however, the above results show that dry grain was 18 per cent. less efficient and steeped grain 17 per cent. less efficient than barley meal. Boiled barley showed a slight, but not significant superiority to meal. Grinding barley definitely improves its utilisation, and Morrison ("Feeds and Feeding 1936") quotes the results of 25 experiments in which the average increased efficiency of barley meal compared with the whole grain was 17 per cent. Grinding barley, particularly for pigs of 150 lb. upwards, will therefore pay when the cost of grinding is not more than, say, 15 per cent. of the cost of the whole grain.

TABLE 2.—TOTAL FEED UNITS AND LIVEWEIGHT INCREASE.

Group	1 Meal.	2 Dry grain.	3 Steeped grain.	4 Boiled grain.
Swedes and carrots/pig (lb.)	2,842	3,387	3,023	2,128
Barley/pig (lb.)	228.4	238.6	245.8	227.3
Meatmeal/pig (lb.)	152.3	159	163.9	151.4
Skim-milk/pig (gals.) ..	49.0	122.5	134.7	122.5
Total feed units/pig ..	713.8	858.8	846.7	714.0
Total liveweight increase (lb.)	114.0	113.8	114.0	116.9
*Feed units to produce 1 lb. liveweight	6.26	7.55	7.43	6.11

* Feed units = 1 lb. meal = 1 gallon separated milk = 10 lb. roots.

One other important point which emerges from the trial is that uncooked swedes are not sufficiently palatable to make them a profitable crop for winter fattening. With the present price for meals and pigmeat, the root should form at least 50 per cent. of the fattening ration to make a payable return for roots grown. It will be seen from Table 2 that the concentrate ration formed considerably more than 50 per cent. of the total. The following table gives the costs and returns for concentrates used and the return for saleable carcass produced. Barley has been costed at 3/4 per bushel and barley meal at 3/11. These were ruling rates at the time of the trial, and it will be noticed that the price charged for grinding was 17 per cent. extra, that is, the increased efficiency of utilisation just paid for the grinding. Meatmeal has been costed at £12/10/- per ton, and separated milk at 1d. per gallon.

The returns in Table 3 have been calculated by taking 73 per cent. of the initial liveweight as carcass weight

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and subtracting this from the final carcass produced. The value of 6½d. per lb. was the ruling rate at the time of the trial.

The value of any foodstuffs in a trial of this kind is determined by its cash return after paying for purchased foodstuffs, and Table 3 shows very clearly that swedes have not given a profitable return in any of the four treatments imposed.

TABLE 3.—COSTS AND RETURNS FOR WINTER FATTENING ON CONCENTRATES AND SWEDES.

Group	1 Meal.	2 Dry grain.	3 Steeped grain.	4 Boiled grain.
Costs Per Pig.				
Barley	17/10	15/10	16/3	15/1
Meatmeal	16/11	17/8	18/2½	16/9
Skim-milk	4/1	10/2½	11/2	10/2½
Total cost	38/10	43/8½	45/7½	42/0½
Returns Per Pig.				
Initial liveweight (lb.)	68.3	68.5	68.8	66.1
Final liveweight (lb.)	182.3	182.3	182.8	183.0
Carcass produced (lb.)	78.7	78.8	78.2	82.3
Value of carcass	42/6	42/7	42/4	44/7
Returns for roots per ton after paying for concentrates	3/8	1/1½ (loss)	3/3½ (loss)	2/6½

Trials with Sugar Beet

Sugar beet as a fattening crop for pigs has received a good deal of attention at various times, and in some instances claims have been made for this crop as a fattening ration which were not in line with what would be reasonably expected from its composition. Sugar beet, like all root crops, is low in protein, and it was to be expected that it would need supplementing with protein of high biological value to obtain the best results.

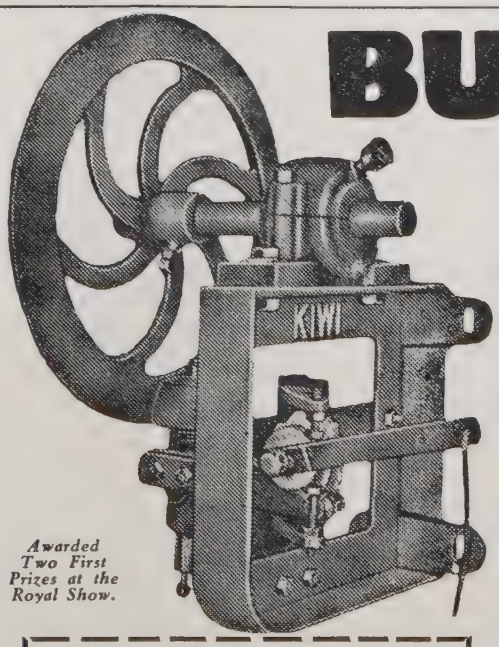
As a demonstration of the place of sugar beet in the scheme of pig feeding, 2½ acres were grown for experimental purposes. The sugar beet was grown on a Hamilton clay loam, which is a typical soil of the Waikato. Two varieties of beet were grown, and the chemical analysis of these varieties carried out by the Chemistry Section of this station is given later. The varieties were not fed separately, and the leaves were fed with the roots. The pigs ate both leaves and roots very readily, and no dietetic troubles were experienced.

As an indication of the value of sugar beet for pig fattening, 36 pigs in three groups were placed on the following rations:—

Group 1.—Sugar beet alone.

Group 2.—Sugar beet plus ½ lb. of meatmeal per pig per day.

Group 3.—Sugar beet plus 1 lb. of meatmeal and 1½ lb. of barley meal per pig per day.



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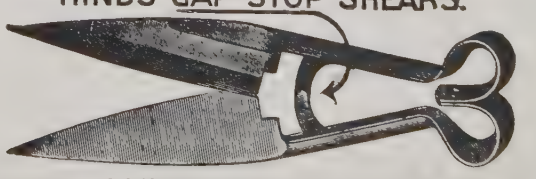

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The sugar beet was fed to appetite, and the pigs were run on one-fifth acre grass pens. Table 4 summarises the results of the trial as shown by liveweight gains and root consumption.

The results obtained again confirm the need for feeding a high protein concentrate with sugar beet to obtain the best results. Sugar beet alone gave very poor results, and the growth rate is no better than is to be obtained with any other root crop when fed alone. Sugar beet has at least twice the feeding value of most other root crops, with the exception of potatoes and artichokes, and unless the rations fed with the beet contains adequate protein the roots are wasted. The use of ½ lb. meatmeal doubled the rate of growth compared with beet alone, but the rate of growth is only that of pigs in store condition. The best results from all points of view were obtained when 2½ lb. of concentrates were fed. The 2½ lb. of concentrates contained 1 lb. of meatmeal and therefore adequate protein, and resulted in a good rate of growth, a saving in root consumed, and the best cash return per ton of roots after paying for concentrates. The cash return per ton of sugar beet after paying for concentrates is given in Table 5. The carcass produced has been calculated on 73 per cent. of the liveweight increase and costed at 6½d. per lb. of carcass. The concentrates used are again

TABLE 4.—LIVEWEIGHT INCREASE FOR PIGS ON SUGAR BEET.

Group	5 Sugar Beet.	6 Beet and ½ lb. Meal.	7 Beet and 2½ lb. Meal.
Initial weight (lb.)	96.5	96.0	97.6
Final weight (lb.)	119.0	145.0	186.4
Gain per pig per day (lb.) ..	0.23	0.56	1.17
Beet consumed per pig (lb.) ..	2,199	2,146	1,771

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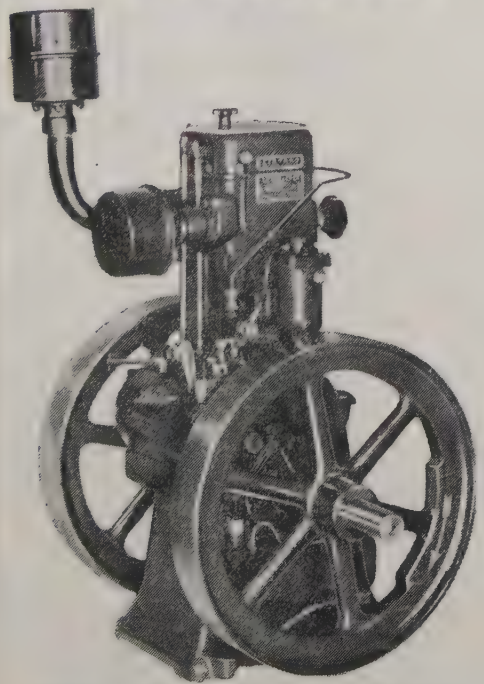

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costed at 3/11 per bushel for barley meal and £12/10/- per ton for meatmeal.

TABLE 5.—COSTS AND RETURNS FOR WINTER FATTENING ON CONCENTRATES AND SUGAR BEET.

Group	5	6	7
	Costs Per Pig.		
Barley meal (lb.)	—	—	9/–
Meatmeal (lb.)	—	4/8	8/2½
Total cost	—	4/8	17/2½
	Returns Per Pig.		
Carcass produced (lb.) ..	16.4	36.1	64.7
Value of carcass	8/10½	19/7	35/1
Returns for roots per ton after paying for concentrates ..	8/10½	15/9½	22/7

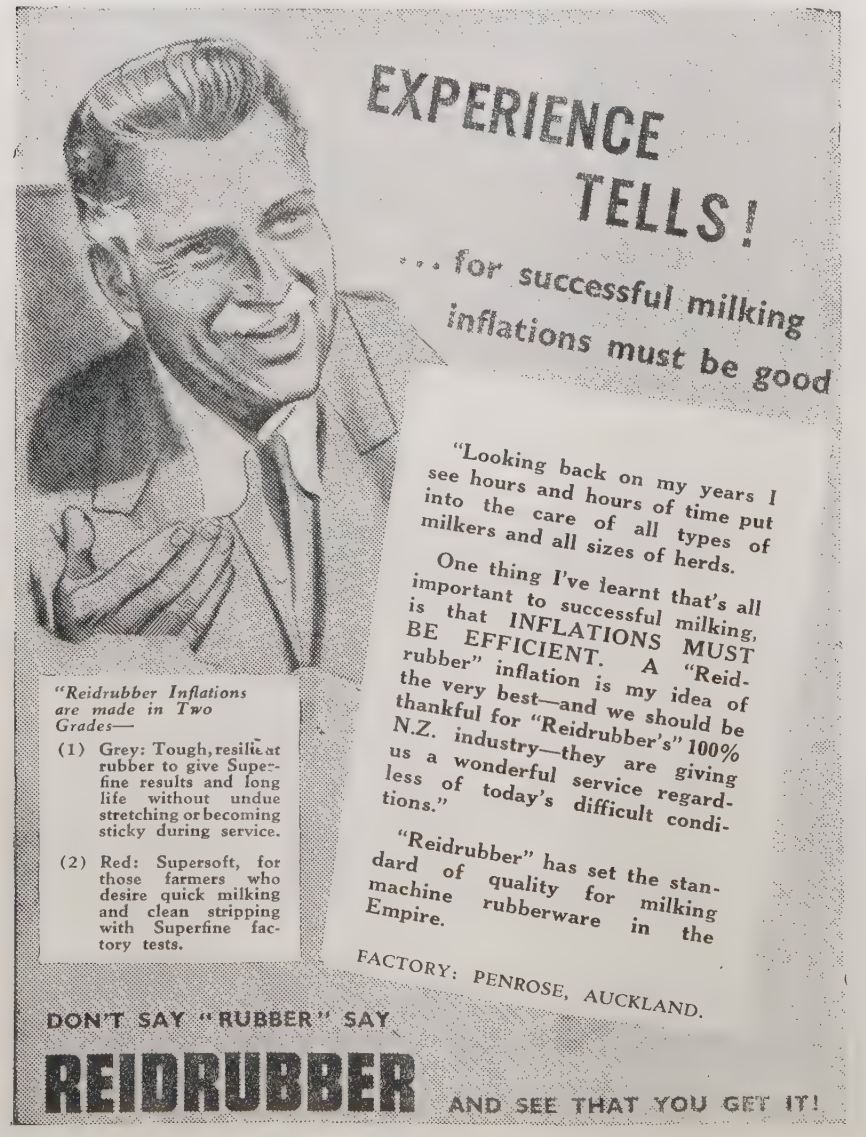
The results show that, should the need arise for increased bacon production, sugar beet can be used profitably for the purpose. Because of the seasonal decline of separated milk, autumn-born litters, such as were used in the above trial, are now disposed of as light pork or carried through the winter as stores. By growing a small area of sugar beet, the declining supply of separated milk can be supplemented and the pigs taken to bacon weights. When the supply of separated milk falls below about 2½ gallons per head per day, then the deficiency should be made up with the concentrates. In this trial sugar beet consumption ranged from about 10 lb. per head per day at the start and gradually increased to about 29 lb. per head.

Two other fattening trials carried out at Ruakura with sugar beet have given very similar results to those given above for Group 7. The pigs used were medium-weight porkers of about 135 lb. liveweight. These pigs were also taken to bacon weights on a basic ration of 2½ units, and the rate of gain, root consumption and returns for roots were all similar to that of Group 7 already given.

Trials with Pumpkins And Carrots

Two other fattening trials carried out with roots are given below. They elaborate the point already brought out by the previous trials—that is, that where a basic ration of concentrates is being fed, the profitableness of the method is governed by the quality and consumption of the farm-grown crop that is fed with it.

In the following trial the root crops used were cattle pumpkins and field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Intending applicants are hereby notified that applications for registration under the Dairy Factory Managers' Regulations should reach the Registrar, Dairy Factory Managers' Registration Board, C/o Department of Agriculture, P.O. Box 3004, Wellington, on or before 1st May, 1942. Forms are available from the Registrar.

Attention is drawn to the fact that under the Regulations, any application which is received by the Board after the 1st May, shall not, except in special circumstances, be considered by the Board until after 1st May, 1943.

H. G. PHILPOTT,
Registrar.

●

N.B.—*This notice refers to persons who are NOT AT PRESENT HOLDERS OF CERTIFICATES. Notice of renewal and renewal form will be posted to every registered manager by the Registrar.*

carrots, and a basic ration of 2½ lb. of concentrates per head per day was used. Group 8 received 2½ lb. of meatmeal and pumpkins, and Group 9 received 1 lb. of meatmeal, 1½ lb. of a proprietary cocoanut and rice meal and carrots. In Table 7 of costs and returns, meatmeal is again costed at £12/10/- per ton and the cocoanut and rice meal at £10 per ton. Group 9 averaged about 20 to 30 lb. heavier than the other groups at the start of the trial, but the main purpose of the trial—the production of bacon with farm-grown crops—is shown.

TABLE 6.—LIVEWEIGHT INCREASE FOR PIGS ON PUMPKINS AND CARROTS.

Group	8 Pumpkins	9 Carrots
Initial weight (lb.) ..	99.41	121.6
Final weight (lb.) ..	172.91	183.7
Gain per pig per day (lb.)	.75	.87
Pumpkins or carrots consumed per pig (lb.) ..	3,048	1,466

It will be seen that the growth rate on both pumpkins and carrots was not satisfactory, particularly when the amount of pumpkins consumed is taken into consideration. Pumpkins consumption began at about 7 lb. per head, and reached a maximum of 43 lb. per head per day. Carrot consumption began at the same rate, and

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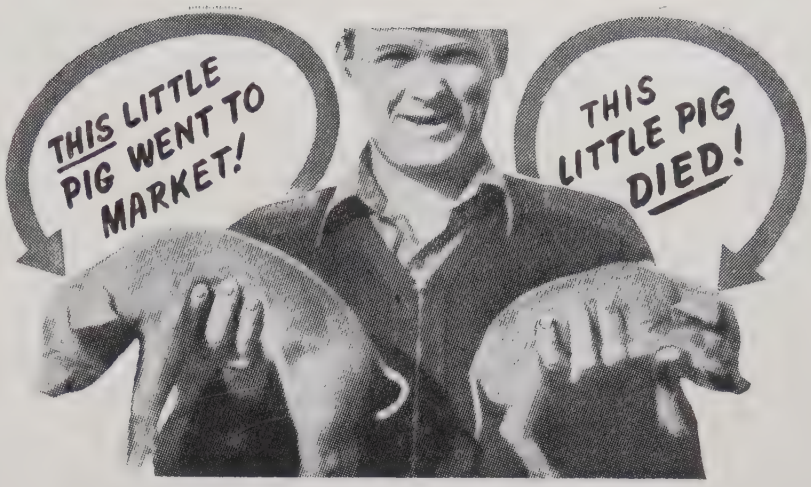

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The pig on the right weighed 1½ lbs. at birth. The pig on the left weighed 2½ lbs.

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reached a maximum of about 26 lb per head.

The high consumption of pumpkins and a low rate of fattening is reflected in the poor return per ton after paying for concentrates. Carrot consumption was much less for a slightly better rate of gain, with a corresponding improvement in cash returns, as is shown in the following table of costs and returns.

TABLE 7.—COSTS AND RETURNS FOR WINTER FATTENING ON CONCENTRATES. PUMPKINS AND CARROTS.

Group	8	9
Costs Per Pig.		
Meat meal (lb.)	26 6½	7 2½
Pollard and Rice Meal (lb.)		19 5½
Total cost for concentrates	26 6½	18 7
Returns Per Pig.		
Carcass produced (lb.)	48 6	46 6
Value of Carcass	24 3	24 0½
Returns for roots per ton after paying for concentrates	1 7	7 5

Of the various root crops used in the trials, sugar beet was the only one which induced a satisfactory rate of fattening or gave a profitable return per ton of roots fed. It must be remembered, however, that sugar beet has twice the feeding value of other root crops, so that on a feed unit basis sugar beet was only slightly better than carrots. The deciding factor, therefore, is the yield per acre and the cost of cultivation. Other things being equal, a 15-ton crop of sugar beet is equivalent in feed value to a 30-ton crop of swedes or a 26-ton crop of carrots. It is cheaper, however, to haul a 15-ton crop of beet than a 30-ton crop of swedes, while it has been shown by the above trials that where a basic ration of concentrates is being fed, the remainder of the ration must be such that it allows a rate of fattening of at least 1 lb. per day before a profitable return can be obtained on present prices for concentrates and pig meal.

In the trials with sugar beet two varieties of beet were grown, and their chemical analysis, supplied by Mr. Waters, Senior, Agricultural Chemist of this station, is given above.

	Dachnfeldt.		Klein Wanzleben.		"Feeding of Farm Livestock."	
	Tops.	Roots.	Tops.	Roots.	Tops.	Roots
Protein	22.88	11.13	19.90	8.28	12.29	4.69
Ether Extract ..	2.06	0.94	1.29	0.47	2.08	.43
Fibre	10.2	6.7	9.6	5.8	15.37	4.69
N.F. Extract ..	47.23	76.0	51.79	81.77	42.49	87.20
Ash	17.63	5.23	17.42	3.68	27.67	2.99

As a comparison, the chemical analysis of beet, from "Feeding of Farm Livestock," by Ellis, is given.

As with all root crops, considerable variation exists in their composition, due to strain, soil and season. From the point of view of pig feeding, however, there was considerably more protein in the varieties grown at Ruakura than is given in the British values, but still not sufficient to make sugar beet a complete food of itself for the production of bacon pigs.

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GATES

By

J. W. BRIMBLECOME,
Inspector of Health, Eltham.

ONLY those who have lived in Taranaki would believe that the subject of gates provides matter enough to fill a volume. Most of us, at some time or other, have spoken highly and heartedly of Taranaki gates without a thought for the work which has denied their conception, consumption, complication and final imperfection.

It has been left to me to place before the public a bare outline of the fascinating study of gates, in the hope that greater brains than mine will conduct a research into their intricacies and eventually create a gate that can be opened—and shut.

Let us first consider the principal branches of the huge gate family of Taranaki and attempt to roughly classify them. Heading the list is a specimen of the pollman, the "Early Settler," or collapsible folding model. This consists of five strands of barbed wire, attached to three blackthorn stakes with as many thorns as prunicus left in situ. It is looped on to posts set each side of a gap, and strained until the top wire gives forth a clear C sharp when lightly tweaked. A further test for those who aim at perfection, is that it shall take two countrymen of average strength to unhitch it, and three to replace it.

The novice who gets mixed up in one at the moment of unhitching should wear warm clothing, be perfectly still, and wait until someone comes to fetch the cows home.

By way of contrast, we pass on to the "It'll Do," or light futility type. It is simply constructed of three battens and a mortise, in the form of a rough oblong, round at the corners with binder twine, old gumboots and pieces of blue striped shirt. The whole

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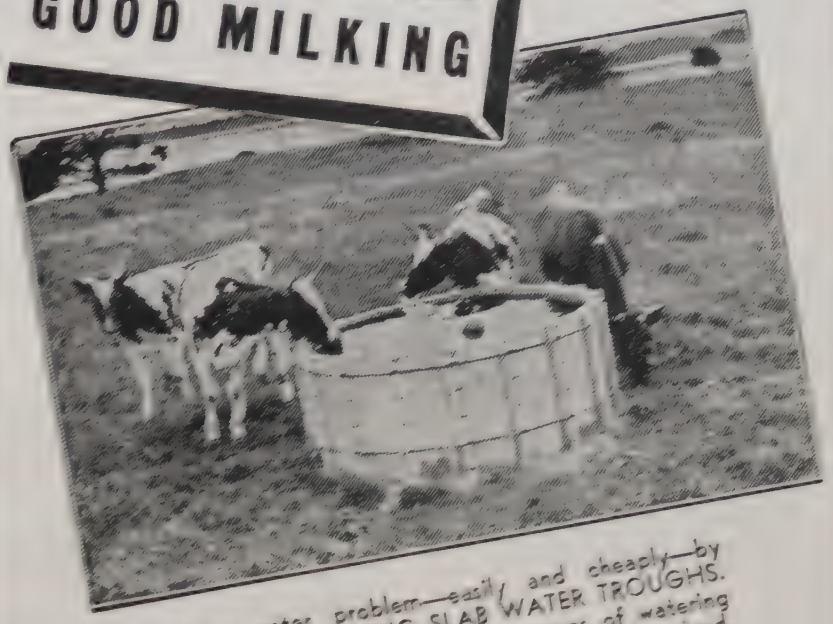

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is covered with rusty wire netting. The top hinge is manufactured from an old boot tongue, secured with tintacks, and the lower one is omitted to allow the dog to squeeze through without undue strain. The fastener is hard to classify, as a certain amount of latitude is permitted. Probably the most satisfactory and common is a loop of well-frayed clothes line that can be easily broken and is of sufficient length to re-tie after passing through, but a leather belt, or the kitchen poker passed through two staples, is favoured by some.

Next we come to the "Waste Not, Want Not," or bedstead variety. This, as the name indicates, consists of the head portion of a Victorian iron bedstead, having not less than three brass knobs on the top rail, and a series of smaller ones on the intermediate rail. The posts supporting it are placed sufficiently close together for the gate to overlap them in length, and the gate is placed on the windward side and held in position by air pressure. In coastal areas, subject to cross winds, a drain pipe, or an old rake, is used as a prop.

For those who wish to make assurance doubly sure, there is the "I Defy Thee" or man-proof gate. This is not intended to be used lightly and wantonly, and is simplified by leaving a wide gap on one side. The posts are made from pieces of the main mast of one of the first three (or was it four?) ships, let into the ground as far as nature will permit. The gate itself follows the lines of a normal field gate, but the timbers are of sufficient girth to ensure a lifting weight of not less than a hundredweight at the opening end. The latch consists of a solid baulk, about three feet long, resting on one of the horizontal bars, and kept in place by the side pieces, between which it theoretically slides. In case there should ever be born a cow of sufficient sagacity to think of sliding this baulk with her horns and moving to pastures new, another block of wood is nailed behind it. When in the closed position, the baulk is slid into a hole patiently excavated in the mainmast. Further security is given by winding a sort of gigantic grandfather's watch chain around the post and gate. This is designed to be always just too long or too short for the hooked ends to meet properly. To open this gate, a fine day should be chosen, and an early start made. Having found the connecting link in the chain (which will always be on the side farthest from the operator), the ends are wrested apart and allowed to fall with a dull thud on to the toes or shin. Next, place the left, or undamaged, instep under the bottom bar, and, exerting a superhuman amount of strength, raise the gate to loosen the latch which is bearing in the hole in the post. At the same time place a couple of hands on the latch and give it a lifting sliding jerk, combined with a smart twist and a slow steady pull, using another hand to steady oneself on the post, and holding the top of the gate with the right hand to prevent it heeling over on the loose hinges. If access is not obtained during the hours of daylight, then there is something the matter with you, or the gate—or both. You should go home and telephone instead.

Space does not permit a descrciption of the peculiarities of the sub-branches of the family, but one must briefly mention the "Show Gate," which is painted white and jammed between the posts while still wet. It therefore requires no fastening and no path. The "Slimming Gate," which is padlocked at the top and is pushed up and crawled under is less well known. The "Practical Joker" gate, which has two bolts and a latch and hinges, all unconnected with the posts, and which falls down when pushed, carrying the visitor with it, is very popular in damp, muddy situations.

No serious article of this nature is complete without a few statistics. Very well, then. It is estimated that the average opening time for all the above gates, multiplied by three hundred and sixty-five days, and converted to foot pounds at the New Zealand rate of exchange, would milk sufficient Jersey cows to produce three thousand pounds of butterfat.

Again. If all the Taranaki gates were stood end to end on Egmont, they would fall down and probably hurt someone considerably.

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Veterinary Notes for the Farmer

Problems of Diseases in Pigs

Contributed by the
LIVESTOCK DIVISION

A post-mortem examination being conducted at a field day.

WHEN field days are arranged on farms and animals are obtained for demonstration purposes the variety of diseased animals available is often limited. Quite commonly, instead of finding an animal typically representative of a special disease, what might be described as injured animals or animals suffering from a localised disease are brought forward. In the case (case 1) under review, the pig was brought along with an enormously swollen jaw. The owner and others who inspected the animal were of opinion that the pig was affected with tuberculosis, as swellings under the jaw are given as a common symptom of tuberculosis in cattle and pigs.

Case 1.—The large jaw of the Large White boar which was operated on at the field day demonstration.

The veterinary officer conducting the demonstration, Mr. J. Mullins, Hamilton, diagnosed the animal as being affected with an injured jawbone, and proceeded to open up the swelling to find out the nature of the contents. The swelling was opened up thoroughly, drained, and cleaned out, and among other debris of a foul-smelling nature removed from the swelling was a loose piece of bone which had been detached from the under-jaw. The wound was syringed out and kept syringed out for several days, after which normal healing with almost complete disappearance of the swelling took place. The animal, a valuable Large White boar, was used for a long time afterwards without any after-effects.

When the nature of the swelling was demonstrated to those present, there then followed a history of a kicking horse grazing in the paddock with the boar, and it was quite apparent that the horse had kicked the boar on the jaw, breaking it and resulting in a loose piece of dead bone being found when the swelling was opened up and drained.

At another farm pigs were found with rather similar swellings on the lower side of the jaw. The owner was emphatic that the pigs were affected with tuberculosis, and was agreeable and anxious that the pigs be killed at the works, where the demonstration

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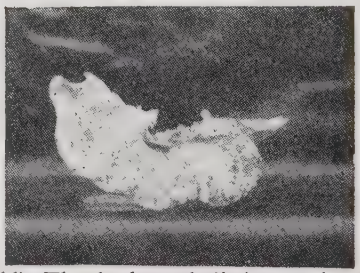
Case 2.—(a) The live animal, showing the swelling.

(b)—The head of the dressed carcass.

(c) The swelling opened up.



(d) The jawbone boiled out, showing the broken bone.

of the diseased condition could be continued. The accompanying photographs illustrate: (1) the live animal, (2) the head of the dressed carcass, (3) the swelling opened up, and (4) the jawbone boiled out, showing the broken jawbone, or, rather, the callus, formed in the healing of a broken jawbone.

These cases illustrate the ease with which permanent injury may arise in animals. Because of the stubborn nature of pigs, heavy sticks are used frequently, in which case a blow may easily fracture a bone of the jaw or a bone in the limb. Greater care in the handling of pigs would avoid accidents of this nature.

Suipestifer Disease

The following account of a typical outbreak of *suipestifer* disease in pigs

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FARMERS—greater care of your flock means healthier lambs, heavier and brighter wool clip. Improve the general health and condition of your stock by using the well-known JOSEPH FORD'S COBALT DRENCH for Scour and general unthriftiness. NO STARVING OF STOCK IS NECESSARY. No need to remove lambs and hoggets from rape, turnips or other feed before dosing.
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was forwarded by an Inspector of Stock:—

No previous mortalities in pigs were recorded on the property. Twenty pigs were weaned and were apparently healthy; they were fed on skim-milk, but the grazing was very poor. Some time afterwards a Tamworth boar of the same age as the others was purchased and turned out with the other pigs. All went well for a month or so, although now the owner realises that the purchased boar was unthrifty and never put on the same condition as the other pigs. Reviewing the history, one cannot set aside the suspicion that the boar introduced the disease, which, no doubt, found a fertile field for dissemination in the insanitary sties and surroundings.

The first noticeable symptom that things were amiss was evidence of apparent check, diarrhoea, breathing accelerated, nasal discharge, discolouration of skin, and loss of condition. On being first noticed, the animals were immediately confined to their sties, where the symptoms became markedly more pronounced. The following morning two were found dead, and the matter was reported to the Department. The post-mortem examination disclosed lesions indicative of *suipestifer* infection. Specimens were taken and forwarded to the Animal Research Station, Wallaceville, where the examination confirmed the cause to be *suipestifer* infection.

In all, 14 pigs died, these being about three months old. The seven survivors appeared to be recovering slowly, but it is doubtful whether they will ever be an economic proposition. In any case, they would probably remain carriers of the disease and be a menace to future lots if suitable precautions were not taken.

In this case, the sties were discarded, and the surroundings were ploughed and limed and kept free of pigs for a time. It should be noted that all the other pigs on the farm which had never been in contact with the affected lot, being kept strictly segregated, remained healthy.

This report demonstrates the necessity for isolation of newly-purchased pigs until the owner is satisfied that they are free from disease. It also demonstrates the value of isolation and segregation of pigs on the farm when an outbreak of *suipestifer* disease arises on any property.

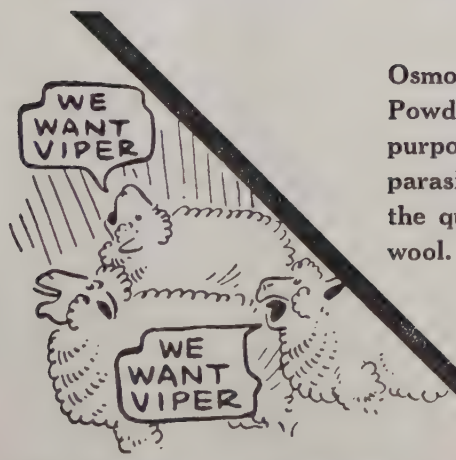
Paralysis in Pigs

Paralysis denotes inability, complete or partial, to use certain muscles because of interference with the nerve supply. In the conditions referred to here, the muscles concerned are chiefly those of the limbs, more particularly the hindquarters, although to some extent all muscles are involved. There is imperfect control of the hind legs, resulting in a staggery gait, or perhaps in the hind legs being trailed on the ground.

Paralysis is seen in fracture of spine, in tuberculosis of the spine, and in vitamin A deficiency.

Fracture of the spine occurs mostly in mature pigs, such as sows, as a result

A REAL
QUICK KILLER
OF PARASITES AND THEIR EGGS



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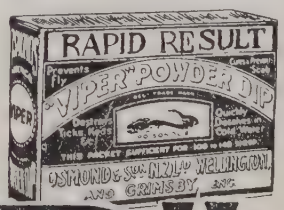

OSMOND'S
"VIPER"
RAPID RESULT POWDER SHEEP DIP

of fighting or accidents. Sows which have just weaned a litter appear to be more liable to fracture because of the removal of portion of the mineral matters from the bones during pregnancy and lactation. The resulting paralysis appears suddenly. The animal appears perfectly healthy, but is unable to raise the hindquarters from the ground. Treatment is not justified. A waiting policy may be adopted for a day or two, but if the diagnosis of fracture is reasonably certain the animal should be slaughtered.

Tuberculosis of the spine is a rare cause of paralysis, but cases have been seen, again usually in mature pigs. The onset of the paralysis is more gradual. Diagnosis of the actual cause cannot be made with certainty during life, but a positive reaction to the tuberculin test would provide some confirmation.

Paralysis from vitamin A deficiency is the most common type. In Australia, a very comprehensive report on the conditions was given by Seddon and Frazer in 1927, although the cause was not then known.

It has been noted more or less regularly in New Zealand, and more recent work in the U.S.A. and at Cambridge has shown conclusively that deficiency of vitamin A is a cause. In New Zealand we meet it under conditions of feeding where this deficiency is very likely to occur, namely, a skim-milk diet without any supplement or green food or grazing of any kind. It is probably a tribute to the improvement in the type of feeding and to the wider adoption of a sound open-air system with regular access to a good quality grazing that cases of this kind are becoming fewer.

Advisory Service on Veterinary Matters.

Farmers are invited to submit inquiries connected with the health of their stock, and the replies will be published under this heading.

Symptoms Seen

Affected pigs may be from three to six months old, and frequently they are in good condition. The first sign is unsteadiness on the hindquarters and a tendency to sag to one side and for pig to tumble over if it turns quickly. Later, power of the hind legs is lost to such an extent that the animal is unable to stand on them, and adopts a sitting attitude or trails the hind limbs. The voice becomes shriller, and the

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pigs are somewhat more nervous. A post-mortem examination may show nothing amiss, although the large (sciatic) nerves supplying the hind limbs may be found microscopically to be degenerated.

Treatment consists in supplying vitaman A, which can be done readily by giving fresh green feed, cod-liver oil, or whole-milk. Where nerve damage is extensive, recovery does not always follow.

Prevention is along the same lines.

Trembles in Pigs

This very apt name is given to a condition perhaps more properly termed chorea, or shivering, which is fairly frequently seen in small pigs. The whole body is constantly agitated by a jerking and twitching of the muscles, which may be so severe as to prevent the animal from standing up. One or two pigs, or perhaps the whole litter, may be affected in varying degrees.

Various writers have discussed this condition and speculated as to its cause, and while there is a tendency to ascribe it to some hereditary factor, this is by no means established. In the writer's experience, there was in one case a suggestion of hereditary factor, as all the sows farrowing to one boar showed a percentage of cases in their litters, while litters by another boar and farrowing about the same time were unaffected. In other cases, however, sows which had affected litters were again bred to same boar and had normal litters. A sow affected as a sucker was bred, and litters were not affected.

Further information over numbers of cases is required before any preventive measures can be advised.

Where affected piglets are able to suckle, they should be kept, as the tendency in all cases is to a gradual disappearance of the condition. Usually, by weaning time all signs of it are lost. Occasionally, little pigs are so badly affected at birth that they are unable to suck or even to stand up.

Answers to Correspondents

Blood in Milk

C.B. (WAIKAKA):—

I bought two Jersey heifer calves from a dairy farmer. Both calved this spring and looked very promising as milkers. After milking about a month, one of them started milking blood from one teat; it was clotted and took me some time to get it all clear. Then each teat in turn went the same way. Eventually, the blood cleared to a certain extent, but the milk would often show red in the strippings. Each teat has now a lump in it (not like a pea, something bigger, more like a soft clot of some kind). I thought this heifer was in calf, but since getting rid of the bull discovered that she has failed to hold. I would be pleased if you would advise me through the "Journal of Agriculture" as to whether I should get her in calf and try her out for another season. The other heifer has a small lump in one teat, more like a small pea, and sometimes a small clot of blood comes away when I start to milk her. She also has failed to get in calf. I milk nine cows by hand; the other seven are all in calf.

LIVESTOCK DIVISION:—

There is often a red coloration in the milk of newly-calved cows for a few days due to the presence of blood. At other times, blood may escape into the milk when the udder has been injured, and sometimes when it is congested or inflamed.

A thickening in the gland or in the teat duct may be sufficient cause, the irritation caused by milking contributing to the escape of blood. This latter instance is, I think, the cause in the heifer you refer to. A thickening of the lining membrane of the teat duct has developed. This has had a tendency to increase under the irritative effect of milking, allowing at times the escape of blood.

In certain families with narrow loose teats, there is a tendency for such a thickening of the mucous membrane to take place during the first lactation period, and when it exists in one teat, traces can often be determined in the others, and, like your own case, each teat in turn is affected.

No treatment is possible during the lactation period, and even in the dry period a small surgical operation is necessary, with an attendant risk of infecting the udder and setting up mastitis.

As the heifer is not in calf I think you might be well advised to dispose of her if the lumps in the teats do not go; you have a difficult milker on your hands, and one liable at any time to give blood in the milk.

The affected quarters should be well stripped out at each milking, and you might try the application of a stainless iodine ointment to the outside of each affected teat.

Heart Trouble in a Horse

"INQUIRER" (DARGAVILLE):—

I have a medium draught horse aged about eight or nine years, in good condition and of a placid nature. It is quite a good worker, but I have very little work to give it.

During the last few months it has been taking fainting turns and falls down, and after a minute or two it gets up and is very shaky for about three or four minutes, and then becomes quite normal and goes on grazing. It may have two or three of

Ensure easy, quiet milking in spite of sore teats with PATTEN'S MILKEEZE

Soothes and heals cuts, sores and cracks. Cannot taint the milk.

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these turns during the day, and then miss a day or two.

Its motions seem a bit light in colour, so I give it 1½ pints of raw linseed oil, and this seems to have made the colour normal, as from a grass pasture.

LIVESTOCK DIVISION:—

The symptoms shown by your horse indicate some form of heart trouble, the nature of which could be determined only by a careful examination of the animal. The covering of the heart itself, the heart muscle, the valves of the heart, or the heart lining may one or all be affected; consequently, it can easily be understood how impossible it is to decide on the exact nature of the trouble unless by a personal examination. Frequently, horses show no symptoms of this trouble until they collapse.

The fact of your horse being worked only at long intervals may have resulted in a fatty condition of the heart, in which case a small amount of gradually increasing exercise daily would be the best line of treatment to follow. This should not, of course, be given in the heat of the day.

Cows Failing to Hold to Bull

J.G. (OPUA):—

We have considerable trouble with cows returning to the bull and would appreciate your advice for treatment. The bull is a Jersey 4½ years old, in good condition. The cows (15) are in good condition, milking well, and we have tried to overcome the difficulty by omitting service every alternate heat, but without success. We are negotiating for the purchase of a Shorthorn to replace the Jersey, but there is a danger of the trouble being with the cows, as well as the bull, in which case we would be no better off.

LIVESTOCK DIVISION:—

The replacement of the present bull by a new one should eliminate the possibility of trouble from this source. If the cows themselves should be at fault it is most likely due to an inflammation of the neck of the womb—a cervicitis. The treatment recommended for this trouble is the injection every third day, between heat periods, of the following solution:—

Lugol's iodine, ½ oz.
Salt, 1 oz.
Boiled water, 1 gallon.

This injection should be given, about a pint to each cow, at blood heat by means of a funnel and rubber tubing. The injection should be placed well forward, so that it comes in contact with the neck of the womb. This solution should not be allowed to come in contact with any exposed metal surfaces.

Another disease, an inflammation of the vagina known as "granular vaginitis," might also be a possible cause of this trouble. In this case an examination of the lining of the inside of the vagina will show that instead of it being a normal pale pink colour it is inflamed and covered with what appear to be small pimples, and in some cases pin-points of matter may be seen.

If this disease is present all breeding will have to cease for four to six weeks, as the bull acts as a carrier from cow to cow and may also become infected himself. Quite a number of cows affected, although returning, will be found to be in calf.

The treatment for this disease is as follows:—Daily douche with a solution of sulpho-carbolate of zinc, 1 teaspoonful to one quart of water (boiled), for a fortnight; this should be followed by a week's treatment of permanganate of potash, 1 teaspoonful to one gallon of water, and by a further week's treatment of salt and water (1 teaspoonful to the pint).

The bull should also be treated, a rubber enema syringe being most suitable for the purpose.

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Spraying Cobalt on Hay

F.A. (MAPIU):—

Could you kindly tell me through your "Journal" how I could spray cobalt on hay, as I am feeding a stack out? Could I water each layer of hay with a solution of cobalt, or is there any other method of mixing cobalt with hay without wasting the former?

I would like a grass and clover mixture for a poor, steep, light loam, sunny face in Central King Country; the place is badly infested with grass grub.

ANIMAL RESEARCH DIVISION:—

One ounce of cobalt sulphate should be dissolved in one beer bottle full of water. One fluid ounce of this solution should then be diluted with sufficient water to spray evenly one ton of hay. This will ensure sufficient cobalt being added to the hay to provide an adequate supplement for sheep receiving 1lb of hay per day, or for cattle receiving 5lb of hay per day. If these amounts are increased no harm will accrue.

It should be emphasised, however, that a much more satisfactory method of supplying cobalt is to topdress the pastures with 5oz. of cobalt sulphate per acre. Cobaltised superphosphate is now available on the market. A pamphlet giving full information concerning the diagnosis, treatment, and prevention of cobalt deficiency is being posted to you.

Prolapse of the Rectum in Pigs.

R. G. (PATUMAHOE):—

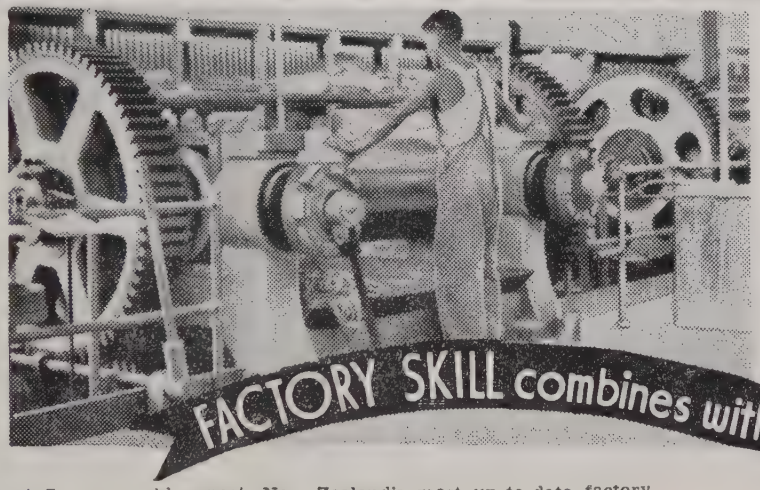
Would you please inform me through the "Journal" the correct treatment for piles in pigs?

LIVESTOCK DIVISION:—

The condition you refer to in your letter is known as prolapse of the rectum.

In this condition portion of the hind gut becomes turned inside out and projects as a dark red swelling, rapidly becoming swollen and irritated. It is most often seen in weaners, where the cause may be indigestion or overfeeding on whey or skim-milk, or use of a trough just too high, on the edge of which the pig rests his belly, because he must get his feet in the trough. Prevent by feeding smaller quantities and often, and by providing a lower trough. In older pigs, it may be the result of high condition, lack of exercise, constipation, or diarrhoea.

If seen early, the pig may be raised by hind legs, the part gently massaged to remove swelling, and then replaced. A draw stitch in and out round anus, left in place forty-eight hours, will prevent recurrence. Keep on a very short diet, with a little raw linseed oil. Instead of a stitch, a safety pin has been used with good results with young pigs.



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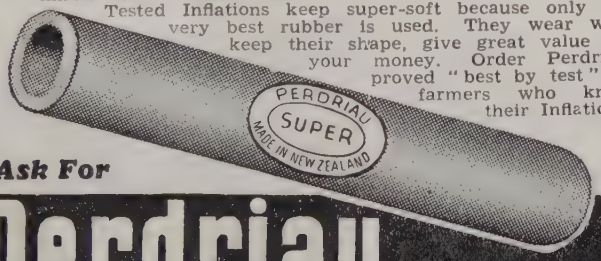

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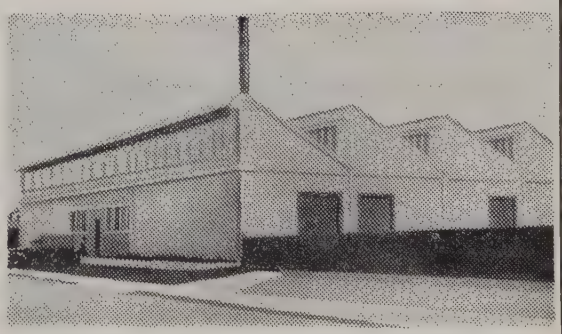

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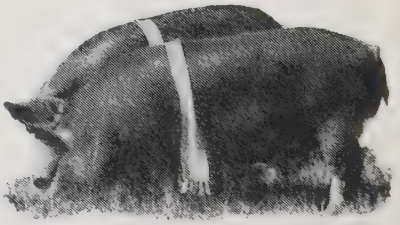

Mr. W. G. Duncan's Two Champions.

The outstanding animals depicted above were a prominent feature of the recent Show at Gisborne, and the splendid condition in which these entries came before the Judges excited enthusiastic comment.

A VERY BIG PERCENTAGE OF THE SHOW PRIZE-WINNERS — INCLUDING THOSE SHOWN HERE— WERE PROVIDED BY PIG-GERIES THAT ARE LARGE AND CONSISTENT USERS OF "WONDER" MINERAL STOCK FOOD.

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In view of the petrol restrictions and the consequent reduction in travellers' calls, direct orders from Producers would be welcomed.

Under present circumstances it is a national duty to keep stock of all classes in the best of condition.

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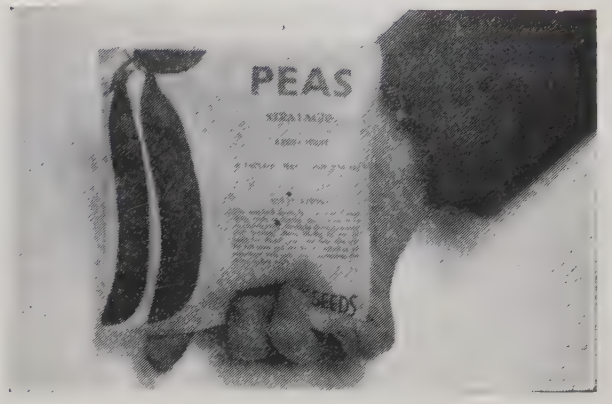
Garden Peas

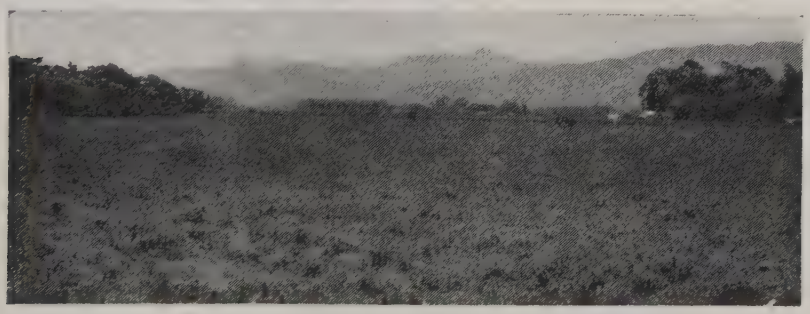
How They Are Produced



By
D. R. WILKIE,
Instructor in Agriculture,
Blenheim.

WE buy them very casually. "A packet of garden peas, please." We give no more thought to them than that. We accept the seeds with complete trust that the luxurious plants illustrated on the packet will ultimately appear in our own garden. Probably we don't get quite as prolific a crop as the illustration leads us to hope for, but nevertheless we are rewarded with a bounteous harvest of succulent green peas to garnish our lamb and mint sauce.

And all we have done is to ask trustingly for a packet of green peas. But how many realise what a vast amount of skilled work and organisation goes into the production of that packet of peas. Farmers, skilled rogueing gangs, machine-dressing experts, pea-pickers, seed merchants and packers, all contribute to the effort which gives you a pea for the garden that can be relied upon to produce well and remain true to type.



A crop of peas in flower in the Rapaura district.

In order to isolate the different varieties, years of research work were necessary, but today clean peas of a certain variety are sent out by the seed merchant to the farmer for sowing. This takes place about September, when the frost danger is past and by which time the land has been worked down to a good seed bed and is ready to receive the seed.

Sowing the Seed

Superphosphate is usually sown with the seed, which is drilled in the ordinary way. Due to the size of the seed, some modification of the ordinary drill has been found necessary so that the larger seed can flow through the usual seed channels. Apart from this, sowing is similar to that of any cereal crop. About 3½ bushels per acre of seed are sown, and the paddock is harrowed following drilling.

In about a fortnight the young peas will be showing through, and from that period onwards good moisture conditions and no check in growth are required for optimum growth and a heavy crop. Within two months from sowing time the flowers are beginning to appear, and this is regarded as a critical period, when light rain is very beneficial.

It is certainly a momentous stage for the odd pea of a different variety growing in a pedigree crop, for it is at this time that the rogueing gangs go to work. These men are specially trained, and have the "eye for the stranger" as they go through the crops, systematically picking out the rogues and "run out" peas. Beats are pegged out in the paddock, and the men line up, spaced a few paces from each other, and advance through the crop, sorting out the undesirables until the whole area has been traversed. The farmer generally enjoys this procedure, his ambition being to find a rogue overlooked by the gang, but despite diligent search he is usually disappointed.

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Harvesting

Following this operation, the crop is left to ripen and is harvested. Mowing is the first operation, and the peas are then swept up and stacked and finally threshed. The pick-up-header is a later method, whereby peas are taken out of the swathe and threshed on the spot. In view of the shortage of manpower, this method is rapidly making headway.

The full sacks are now ready for machine dressing, which is done by men experienced over many years in taking out dirt, weeds and broken peas. Some of the machines used are extremely ingenious, particularly the one used for sorting out cracked peas from sound ones. The principle used is that a sound pea will bounce higher than its cracked counterpart, and the seeds are made to perform a miniature steeplechase, with the result that those "sound in wind and limb" find themselves together and the damaged and deformed are left on the other side of the barrier.

Thus, we have arrived at sacks of peas true to name and sound in physical structure. Unfortunately, the machines are not quite perfect, as some shrivelled specimens are sometimes left in, and an odd pea of a different variety overlooked in the paddock both by the gang and the foraging farmer may also appear. In these cases hand-picking is resorted to. Each picker, generally young girls or boys, has a small sorting machine consisting of a hopper and a travelling belt. The peas are tipped into the hopper, and as they travel towards the picker the unwanted peas are taken out. This is slow work, but is undertaken by the industry in order to keep up the high standards to which we have grown accustomed.

Final Test

Germination tests on the various lines are now carried out, and if these are satisfactory the bulk lines of peas are broken down and packeted for sale.

And that is why we can nonchalantly ask for a packet of garden peas, knowing that a plentiful crop will result.

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Canaries for New Zealand

SIX pairs of canaries for New Zealand are an unusual item in the livestock shipped from Britain during last year. Crested canaries are becoming more popular, and a great demand for them is expected when war restrictions disappear.

Argentina, Brazil, Canada, Kenya, and Uruguay received bulls, cows, rams, and ewes. The cattle shipped present a good cross-section of British pedigree stock. In the beef-producing class there were eight Aberdeen Angus bulls, six for Argentina and two for Canada; a Devon bull for Brazil; and four Hereford bulls, three for Uruguay and the other for Argentina. Dairy cattle were represented by an Ayrshire bull for Kenya, while the world's greatest dual-purpose breed, the Shorthorn, famous alike for its milking as its beef-producing qualities, was responsible for 81 of the 95 cattle shipped. No fewer than 69 Shorthorn bulls were sent to Argentina and one to Canada. All the cows exported in the half-year were Shorthorns, 10 going to Canada and one to Kenya.

All the 45 sheep shipped abroad were of the Down type. Six Southdown rams and 18 ewes went to Canada, which also took two Hampshire Down rams and eight ewes, as well as nine Suffolk rams. To Chile were shipped two Hampshire Down rams.

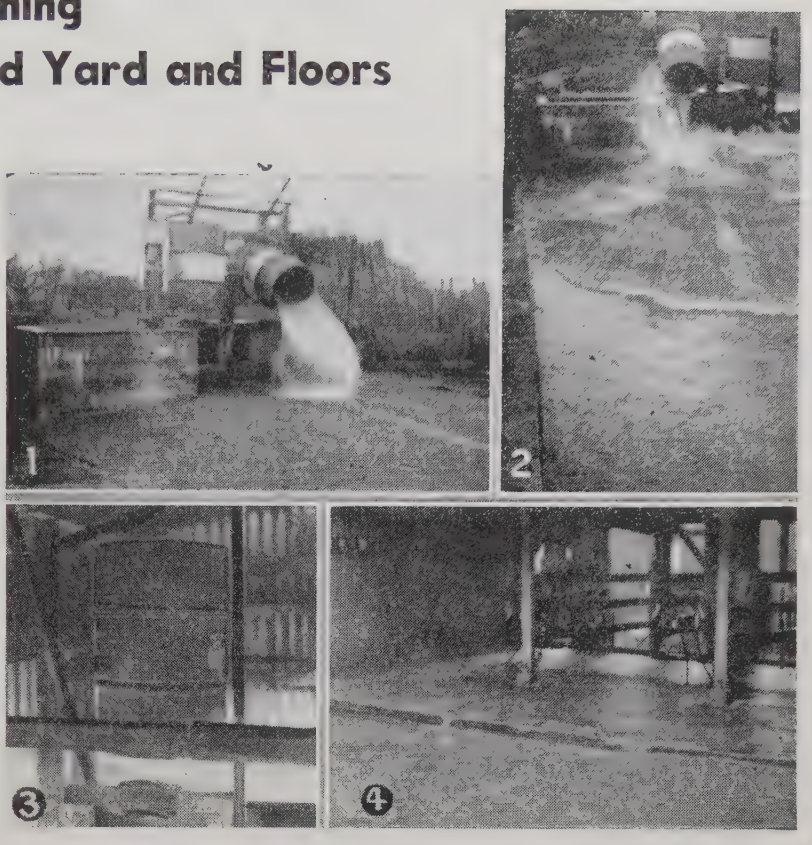
Poultry and pheasants were sent to most accessible quarters of the world.

Novel Method of Flushing Cowshed Yard and Floors

ON most dairy farms only a low-pressure water supply is available, and water bucketed from a trough is commonly used to flush out the shed yard and floors after milking. On Mr. Hill's property, Central Takaka, an easy and ingenious method of providing an abundance of water for this purpose was recently noted.

Along the high side of the concrete-floored holding yard two 44-gallon oil drums had been set up on a platform. These drums, seen in Fig. 1, are filled from a pipe-line on the left through a small, intermediate ball-cock float chamber, which shuts off the water at the required level. Each drum is supported on an axle made from a ¾-inch piece of piping, which pierces the drums slightly below their centre line. The drums are inter-connected by a piece of rubber tubing and filled through their axles by rubber tubing connected to the ball-cock float chamber.

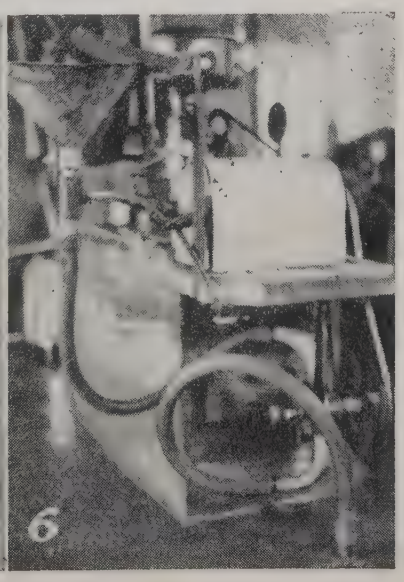
By pulling a string release, each drum can be tripped independently, or the two together, spilling their water over the shed yard. Fig. 1 also shows the right-side drum tripped, then the left-side drum in Fig. 2. A counter-weight attached to the inside bottom of each drum returns them to the upright position again after they have emptied. The flood of water delivered from the tipping over of this second drum may also be seen. Pieces of old motor tyre have been fitted on the fully tipped and return positions of each drum to act as cushioned stops.



Drums in Shed

Within the shed itself and above the bails at either end, a further two 44-gallon drums have been erected. Fig. 3 is a photograph of one of them, while Fig. 4 shows the result after it had been inverted. These drums were arranged to tip inwards towards the centre of the shed.

Mr. Hill stated that, in practice, one drum in the yard and one in the shed were tripped following milking, after which the floors were swept clean, then the water from the remaining two drums released. The cleaning job could thus be quickly and effectively completed with the minimum of labour.



Separator Motor Covered

Other novel and interesting features in this shed are illustrated in Figs. 5 and 6. Fig. 5 shows the separator motor completely housed with a metal cover as a precaution against the entry of moisture and to facilitate the cleaning of the separator and equipment, and also the pulley drive to the gear wheel type skim-milk pump below.

Fig. 6 shows the funnel into which the skim-milk is fed. When this funnel is swung under the separators skim-milk spout linkage between the funnel and the hinged pump tightens the pulley belt, and the pump begins working at once.

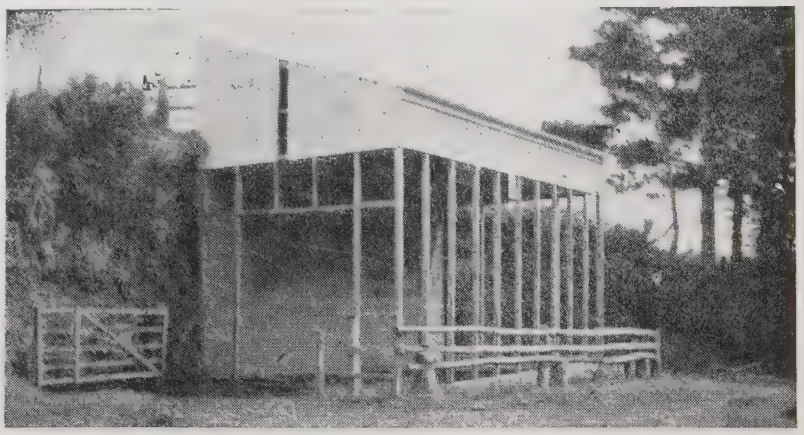
—D. M. E. MERRY, Instructor in Agriculture, Nelson.

Hillside Barn for Storing Hay

THE storage of hay in open sheds of the Dutch barn type is not common in New Zealand, probably due to the high cost of the initial constructions. Nevertheless, barns of this type have proved to be extremely useful, especially in districts where the rainfall is high and where indifferent weather conditions are encountered during harvesting operations.

In Taranaki, for instance, it is seldom that an ideal haymaking season is experienced, and often the harvesting and stacking of the hay crop is a precarious business. Moreover, stacks in such districts must be well built and topped off, for the least fault will allow the entry of rainwater and will result in the subsequent loss of material. With barns of the Dutch or similar type, hay can be stored quickly, no water can run down through the hay because of the iron roof, and little, if any, waste occurs if the barn is evenly filled and properly tramped.

An interesting barn of the Dutch type, but built into a bank, is that on the farm of Mr. G. H. Bell, Oakura, North Taranaki. Here, the barn has three instead of four open sides. The side against the bank is constructed of concrete in the form of a wall, and this is anchored to the bank to give added stability. The roof of the barn is sloping, with the wall on the top side extending six feet above the bank and carrying the double doors for filling during harvesting operations. Except for a low wall carrying the studs on the long open side of the barn, no other concrete has been used, and the hay rests on logs placed on the earth floor.



A general view of the Dutch type barn for storing hay described in this article.

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The dimensions of the barn are:— Height of concrete wall at back, 18 feet; height of studs, 18 feet; length, 30 feet; width, 14 feet. The roof is of corrugated iron with board sides, and all uprights are of dressed timber, while the bottom portion is fenced off with a post and rail fence and a gate where the stored material is loaded on to the dray or truck for feeding out operations.

When full, the barn holds approximately 20 tons of hay. The saving in time and labour is considerable, and the amount of waste in the stored material is negligible.

In a district such as North Taranaki, where the country is of an undulating to hilly nature, there are many sheltered banks and hillsides on farms where barns of the type described would be very useful, and the construction of such a barn would indeed be more than an asset on a farm. Too often, one sees badly built stacks, with a loss of valuable fodder through the entry of rainwater.

I wish to thank Mr. G. H. Bell for his courtesy in furnishing the particulars for this article.

— J. M. HOPKINS, Instructor in Agriculture, New Plymouth.

A view of the top of the bank showing the double doors where filling takes place.

Froth on Milk.

R.C. (NORTHLAND):—

Could your Department please inform me if there is anything that will quell the froth in the milk vat and on the pig barrels? It is becoming a serious problem.

DAIRY DIVISION:—

Froth on skim-milk, cream, and whey is a common cause of difficulty in the manufacturing processes in the dairy industry, of which the separation of milk on the farm can be regarded as a part. A number of devices have been used to reduce the froth in those cases where a pump is used, but they cannot be attached to a separator, as they depend on the pressure of the pump to break up the froth bubbles.

In factory practice one make of separator has claimed to reduce the froth nuisance by providing a slot in the upper side of the delivery spout of the skim-milk cover, but we know of no instance of this being used on a small separator.

The amount of froth will be reduced if the delivery of the skim-milk is directed so that it strikes the side of the vessel in which it is being caught instead of falling directly into the milk itself.

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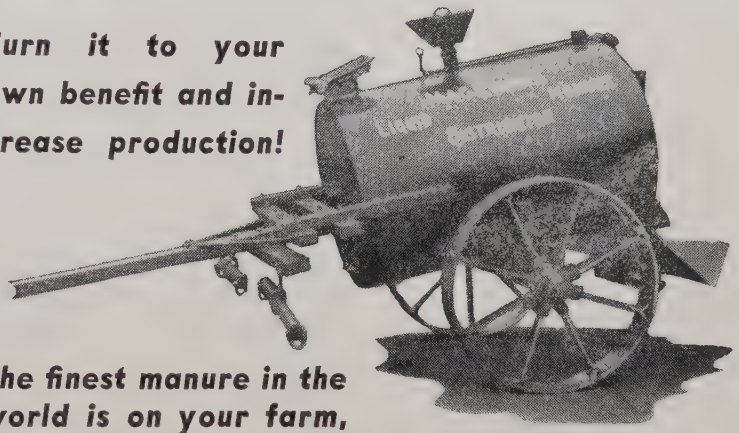

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In the Orchard and Vineyard

Orchard Notes

The Grading and Packing of Fruit

DURING April the work of the orchardist will be almost entirely confined to harvesting his crop and presenting it to the assembly depots for inspection purposes. Every fruit-grower should realise that the grading standards and other conditions must be strictly adhered to. The standards are by no means hard to comply with, and a strict observance therefore will result in placing on the market fruit upon which the consuming public can rely.

There are always sound reasons for the rejection or degrading of any fruit, and when this action has to be taken the inspector is only doing his duty and carrying out the terms of the Regulations and conditions under which the fruit has been purchased by the marketing authorities. When any doubt arises upon any point the advice of the officer in charge of the inspection depot can be sought.

Grading

The adoption of two grades—Fancy and Commercial—for the coming season will assist growers to some extent, more especially in the packing sheds where the full complement of labour may not be available. The Fancy grade will be a combination of the Extra Fancy and Fancy grades as set out in the New Zealand-grown Fruit Regulations, 1940, and the Commercial grade will be the same as set out in the Regulations. With only two grades operating, the fruit for each grade should be kept well up to the standard required and growers should realise that no orchard produces 100 per cent. of marketable fruit, so that some must find its way to the reject box.

The colour question of the Fancy or first grade, being a combination of the old Extra Fancy grade colour and the Fancy grade colour, should present no difficulties, provided growers take care to see that no fruit with less colour than that specified in the Regulations for the different varieties is placed in that grade. Fruits approaching the borderline with regard to colour should be placed in the lower or Commercial grade without any hesitation.

Where large crops of Jonathan and Delicious apples have to be handled, it may be necessary to take a first picking of Delicious before completing the harvesting of the Jonathans. This will depend on the season and the maturity of these varieties, and whether the fruit is required for immediate marketing or storing purposes. If Delicious are being cool-stored it will be preferable to make an earlier picking so that this variety may be placed in store in the correct stage of maturity for keeping purposes. At the same time, the Jonathan crop will be getting nearer the stage of colour and maturity required for successful immediate marketing or short orchard storage.

With the shortage of case timber, the use of reconditioned cases may be extensive this season. Where such reconditioning is undertaken, any defects likely to cause injury to the fruit or to weaken the case in any way should be eliminated. Only good, strongly-made cases will withstand the many handlings in transit to the markets. All previous markings on second-hand cases must be eliminated before repacking them with fresh fruit.

Packing

The principal objective in packing fruit is to get the fruit from the packing shed to the consumer in the best possible condition, using the minimum amount of material for the safe transit of the fruit. To attain this, both grading and packing must be well up to standard. Imperfect sizing and loose packing should be avoided. With the softer varieties of apples, the wrapping of alternate layers is recommended, but with culinary and the harder varieties the wrapping of the bottom and top layers should be sufficient. In all cases the all-round plain wrap should be used.

Where necessary, the orchard storage of fruit should receive close attention, remembering that it will not be possible to get the best results unless stacking, ventilation, covering, and periodical inspections are given due consideration.

Fruit intended for long cool storage should be carefully handled, as the most perfect storing conditions cannot remedy any defects in the fruit before storage. It should be well grown, of proper maturity, of good appearance, and free from diseases, blemish, skin punctures, and bruising to warrant the additional expense incurred and to ensure that the out-turn later in the season will be satisfactory.

General Notes

Spraying for the season is practically finished, although it may be necessary in some districts to make another application of lead arsenate for the control of leaf-roller caterpillar, as well as lime sulphur for the prevention of a late infection of black spot on susceptible varieties.

Pear trees affected with fire-blight should be attended to promptly, cutting out all the affected parts and marking the trees for future observations.

Should it be necessary to replace any trees during the coming planting season it will be advisable to place orders now to save possible disappointment when planting time comes.

—G. STRATFORD, District Supervisor, Dunedin.

Citrus Notes

Applying Fertiliser in the Orchard

MARCH is the principal month for the application of certified summer oil sprays. The standard recommendation is two applications at a strength of 3 per cent. at an interval of three weeks for the control of citrus red-scale. Where an orchard is practically free from this scale, at least one summer oil spray at this strength is advisable as a preventive measure. Very often in other months of the year the hard-wax-scale and olive-scale or the sooty-mould fungus, which lives on the honey dew excreted by these insects, may become evident due to a failure to apply a summer oil spray during this month. For the home orchard an equivalent strength is 1 point of oil to 4 gallons of water. To make up this quantity

take a 5-gallon container and pour into it one pint of the spraying oil, then, while stirring continuously, add slowly an equal quantity of water until an emulsion is formed. Then, with continued stirring, add further water until the mixture reaches the 4-gallon mark.

With the increasing difficulties in obtaining artificial manures, either inorganic or organic, more consideration should be given to farmyard manure. It must be considered not so much from the percentage of the various chemical elements it contains, but rather from its physical effect on the soil. Farmyard manure increases the humus-content of the soil, it is of great benefit to the helpful bacteria, and also in its decomposition and liberation of carbon dioxide it tends to increase photosynthetic activity.

The older and more rotted the dung or farmyard manure before its application, the more rapid are its fertilising ingredients available. The application of farmyard manure to light porous soils also increases their ability to retain water. The relative values of the farmyard manures available are:—Fowl, sheep, pig, horse, and cow manure. Fowl manure is approximately 60 per cent. water, 25 per cent. organic matter, 1.3 per cent. N2 (nitrogen), 0.5 per cent. P2O5 (phosphoric acid), and 0.6 per cent. K2O (potash), balance 12.6 per cent.

Blood and bone and fish manure, if obtainable, form the most convenient and practical manure to apply to citrus trees in the autumn. Both are phospho-nitrogenous, and their percentages of nitrogen and phosphoric acid are practically identical, 6 per cent. N2 and 12 per cent. P2O5. These organic nitrogenous fertilisers are not readily soluble in water. Well worked into the soil, however, they form a steady supply of nitrogenous plant food, and there is little likelihood of the organic nitrogen being leached from the soil too rapidly. The nitrogen of fish fertilisers is usually a little slower acting than with blood and bone, as the oil present retards the assimilation of phosphoric acid but does no harm to the soil. Both these manures are, therefore, suitable as an autumn application to citrus trees at from 1 to 10 lb. per tree according to age and cropping capacity.

The broadcast method of applying fertiliser for mature trees is better than the application of manures in a narrow band beneath the drip of the branches. For younger trees, manures should be spread closer, but never nearer than 18 inches from the tree trunk.

Many growers question the value of mulching citrus trees because of the tendency of the roots to occupy the surface soil under such mulch. The inference has been that such trees are not as deep rooted as cultivated ones, and hence that the trees would suffer in drought periods. Experiments in America have shown that although mulch does favour surface rooting, it does not inhibit the development of deeply penetrating roots if the soil is favourable. Best root development depends upon adequate soil moisture and soil air with absence of a hard pan. The maximum concentration of roots occurs within the top 18 inches of soil, and, in general, trees with deep and wide spreading root systems are the largest, longest-lived, and most regular in their crop production. A good mulch around citrus trees should therefore be encouraged, especially during the summer months.

—A. M. W. GREIG, Citriculturist, Auckland.

Cool Storage Notes

Storage of Granny Smith Apples

THE successful holding of Granny Smith apples for long storage will present difficulties through the shortage of oil-wraps. In order to procure the best results from the storage of Granny Smith apples, the greenish colour must be maintained. This has been made possible by picking and cool storing this variety at the correct state of its maturity and by the use of oil-wraps impregnated with not less than 15 per cent. of mineral oil.

It would appear from experimental work carried out in recent years that, to attain the correct state of maturity. Granny Smith apples grown in the Auckland and Nelson districts should be picked from April 10 to 15. (Fruit grown on the Moutere Hill country is likely to reach maturity before that grown on the Riwaka flats.) In Hawke's Bay Granny Smith apples which were picked for experimental purposes between April 15 and 20 gave the best results.

In the control of superficial scald, a delay of 10 days is beneficial after the fruit is picked and before it is placed in cool storage. If oil-wraps are not procurable, copper sulphate wraps may be used in preference to plain wraps, as the former also contain not less than 15 per cent. of mineral oil.

Granny Smith apples should have reached the correct state of maturity when they are placed in cool storage. This is important, even when they are wrapped in oil-wraps, but becomes more important when the fruits are wrapped in plain wraps or held for storage unwrapped loose in the cases.

To facilitate the maturing of Granny Smith apples, it is beneficial after picking to stack cases in a well-ventilated stack in a cool, dry position on the orchard for 10 days.

When placed in cool storage, this variety should be held at flesh temperature of 32 degrees F. Any further advancement of maturity will then be checked, and, should the fruit have a tendency to develop core-flush, this disorder will not develop during storage beyond the pale pink stage of discolouration. If the fruit is held at a higher range of storage temperatures, this disorder will develop from a pale pink to a brown internal discolouration, and will make the fruit unsuitable for marketing.

When selecting lines of Granny Smith apples for long storage, care should be taken to avoid holding fruit affected with insect and fungous injury, which is prone to develop into rots during storage.

Pears

Immediately after being picked, pears should be placed in cool storage, as it will be too late once the chemical changes which cause ripening have set in.

Pears are more subject to develop rots from bruising than apples. A bruised or stem-punctured pear never heals; it rots, and may bring about a condition in the case during storage commonly known as "nesting." Therefore, every care should be taken in the handling of pears from orchard to cool store.

Stacking the Fruit

Points to remember when stacking cases of fruit in cool storage chambers are:—

(1) Place dunnage on the floor of the chamber.

(2) Do not tight-stack or cross the cases in the stacks.

(3) Provide for one inch of uninterrupted air space between the ends of the cases in the stacks.

(4) Place ample dunnage between the cases in the stacks.

(5) Keep the dunnage as near to the ends of the cases as possible.

(6) Provide sufficient passageways in the chambers to facilitate the stacking and inspection of the fruit.

—A. A. POWELL, Cool Storage Officer, Wellington.

Guide for the Home Garden

Sowing and Harvesting During April

"It might be possible to do without flowers; but the vegetable garden—never."

"Today's failure should be the stimulant for tomorrow's success.

"STOPPING" tomato plants consists of cutting off the main top growth, but care must be taken to allow one lateral to remain well above the topmost truss of fruit. This growth permits the plant an outlet for its energy, and induces the development of the higher trusses of tomatoes. All flowers above the highest truss of fruit which is expected to ripen should be removed. The subsequent growth of foliage from the lateral remaining tends to prevent sunscald of the top fruit, and considerably lessens the liability of the tomatoes splitting after rain which may be followed by bright sunshine.

Tomatoes on well-grown plants should now be maturing faster than they can be used in the ordinary household. This being so, preserving may be carried on to ensure that supplies of processed fruit will be available during the long period which intervenes between producing seasons. As an article of food, few vegetables stand higher in value than the tomato. It contains valuable mineral salts, and is rich in vitamin-content. It contains the valuable vitamins B1 and B2, and has a higher vitamin B complex content than most fruits.

In a special report of the British Medical Research Council, No. 167, the tomato was declared to contain a higher vitamin-content than the orange. Red ripe tomatoes rank equal in vitamin C with grapefruit, lemon juice, orange juice, lettuce, and raw spinach. Vitamin C is the antiscorbutic vitamin, the lack of which in food results in the development of scurvy. It also plays an important part in controlling the calcium and phosphorus in the body tissues.

The tomato can be eaten raw and cooked in many different ways, and, although the vitamins in most vegetables are changed or decreased by cooking, those of the tomato remain practically unaffected. Home gardeners should therefore endeavour by every possible means to prolong the profitable life of their plants.

Seeds to Sow

Seed sowing of general garden crops is practically finished for the season, but seed may still be sown of beetroot (Derwent Globe or Egyptian Turnip Rooted), lettuce (Neapolitan or Wonderful—winter special), radish (Long Scarlet or Scarlet Globe), and spinach (Prickly). If onion seed has not yet been sown, it should be attended to without delay. Sow in rows 2 inches apart in a seedling box filled with good, finely-sieved soil, with which has been mixed a handful of bonedust. Make shallow furrows for the seed, which should be lightly covered with a mixture of 1 part soil, 1 part leaf mould and 1 part sand. Inclusion of sand in the mixture will prevent the covering from "setting" hard on top of the seed. The box should be placed in the shade and covered with paper, which must be removed as soon as the seed begins to germinate.

When the seedlings are about 1 inch high, put a light sprinkling of blood and bone manure between the rows and work it into the soil. This can be done very well with an ordinary dining fork. Cultivation should at all times be shallow and the surface soil never permitted to become "set." Treat the onion seedling as a delicate plant —which it is—and one that requires careful attention, as these seedlings will later be transplanted.

When In Trouble

When results from sowing your own seeds and growing your own plants are unsatisfactory and you are worrying over the probable cause, why not consign your troubles to the Director of the Horticulture Division, P.O. Box 3004, Wellington? He may be able ot assist you. Write him now.

Spring Cabbage

The seed of the "Flower of Spring" variety of cabbage, if sown as previously suggested in "Journal" notes, should have produced plants that will now be ready for setting out. It is an advantage to set the plants on a slightly raised bed; this will provide for drainage of the excessive rain which is usually experienced during winter. Set the plants in rows 12 inches apart, and allow the same distance between the plants. This is close planting, but in the early spring, when green vegetables are invariably scarce and greatly appreciated, harvesting is done by cutting out every second plant in the row. Where this practice is adopted the remaining plants will have ample space for greater development, and should grow into good, well-shaped conical heads.

Planting

Plants for transplanting should never be pulled—they should be dug out. Removed in this manner, none of the delicate feeding rootlets are destroyed, and the plants will become established more quickly. Before setting out, and to destroy aphis or caterpillars which may be on the plants, it would be an advantage if they were dipped in a mixture made by adding 1 teaspoonful of nicotine sulphate and 3 teaspoonfuls of hydrated lime to a gallon of water. When setting, the soil must be firmly pressed against the roots of the plants. This can best be done by pressing down the soil immediately above the root of the plant with the heel of one's boot.

Manuring

Blood and bone manure mixed with half its weight of superphosphate and applied broadcast over the bed at the rate of 1½ lb. per square yard will give the plants a good start. This must be well worked into the soil before planting is started. A few handfuls of crushed carbonate of lime broadcast after digging will tend to keep the soil "sweet" and in condition for action on whatever fertilisers may be used for crop production.

Harvesting Crops.

As soon as convenient, all crops likely to be damaged by frost should be harvested and stored. Potatoes are ready for digging when the skin cannot be removed by rubbing, unless with exceptional pressure. The tubers should not be permitted to remain in the ground after maturity has been reached. During periods of wet weather second growth may start, and much of the value and flavour of the

What To Do In The Garden Next Month

Summary of Operations During April

VEGETABLE SECTION.

SUCCESSIONAL SOWINGS.

Only the seed of those varieties already indicated in these notes.

SEEDLINGS TO TRANSPLANT.

Silver beet, cauliflower, spring cabbage.

PERENNIAL CROPS.

As the fruit of spring rhubarb has now completely died down, it is necessary to clean up the remains of the old crop. Destroy by burning any diseased foliage which may be detected.

Asparagus beds will now require attention. Remove all top growth as soon as it indicates ripeness. This is determined by the green colour of the foliage turning brown and yellowing.

CROPS IN SEASON.

(The month in brackets represents the month in which the seed should be sown.)

Lettuce (May and early June for late spring cutting; August and following months for successional harvesting); radish (except in the coldest winter months); sweet corn (late spring and summer months); tomatoes, outside-grown (early, mid-Aug.; late, early Oct.); celery (early Sept. and till Nov.); cucumber, outside grown (frost-free areas, Sept.; other areas, Oct.); onions and spring onions (Mar., early Apr., and early spring); egg plant (Oct.); spring cabbage (June); cauliflower (mid-June); summer cabbage (mid-July).

GENERAL WORK.

For the next three months not much can be done in sowing seed and setting out plants. Now, however, is the time for cleaning up the garden, for deep digging of the soil, for harvesting, and storing crops likely to be damaged by frost, and—which is extremely important—setting out a plan of the garden for next season. During the cleaning up of the garden all crop residues affected with disease should be destroyed by burning. Care exercised in this manner will be amply repaid, as the spores of fungi remaining on old plants will be destroyed, thereby lessening to a great extent the possibility of infection of crops the following season.

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potato will be lost. After being thoroughly dried, the tubers may be stored in clean sacks or boxes, and placed in a cool shed where there is no danger of frost reaching them. "Greening" of potatoes by exposure to light leads to the development of a poisoinous alkaloid called solanin, which is found in the haulm.

Kumeras.—Kumeras should be dug carefully and before being injured by frost. All tubers which are bruised or damaged while digging should be put aside for immediate use, and those which it is intended to store should be left on the ground for several days to become thoroughly dry. They may be covered at night with their foliage. Much the same storage conditions as are suitable for potatoes apply to kumeras. In small quantities they may be stored in sand.

Carrots and Beetroot.—Beetroot is more easily damaged by frost than carrots. Both these varieties can be easily stored in a mixture of moist sand and soil. No air spaces should be permitted to remain in the storage heap, and it is necessary for the roots to be packed in alternate layers with the sand and soil mixture. If properly stored, beetroot will remain in good condition for six to eight months. One inch of tops should remain on carrots and 2 to 3 inches on beetroot. Damaged or split carrots must not be stored.

Parsnips and Jerusalem Artichokes.—These are best left where they have grown; they can be dug for use as required.

Swedes.—Swedes may either be lifted or left in the ground. If dug and stored, the part of the garden rendered vacant should be turned over and sown with a green crop which, later, will be dug under.

Marrows, Pumpkins, and Other Gourds.—These must be harvested as soon as frost is expected. If sufficient shed space is available, place the gourds on top of a 3-inch layer of hay or straw. In small heaps under the shelter of a live hedge or under trees, where there is no danger of them being affected with frost, they will keep quite well.

Rhubarb.—Do not allow the rhubarb bed to become weedy. Remove all weeds and dead foliage, some of which may have become affected by virus. This should be destroyed by burning, but healthy weeds may be placed on the compost heap. If obtainable, give the bed a heavy mulch of animal manure and straw. The best material for this purpose is stable manure. If the rhubarb is a winter variety, give each root a dressing of two handfuls of blood and bone manure. Should this not be available, a heavy dressing of cow or fowl manure can be substituted, particularly if the soil is light. It should be immediately turned over lightly with a fork, taking care not to damage the roots.

Cauliflower, Kale, Brussels Sprouts, and Broccoli.—These plants will now have grown to a considerable height, and, where they are growing in exposed positions, it is a good plan to brace them against the prevailing wind with a shovelful of soil. These plants are not deep rooting, and, once disturbed by being blown over, they seldom recover. This applies particularly to kale and brussels sprouts.

—D. K. PRITCHARD, Instructor in Vegetable Culture, Wellington.

Load Railway Wagons to Capacity

Release Them Quickly

In every corner of New Zealand there is increasing urgency for more and more transport to move the essential products of our farms and factories. The answer to this incessant, insatiable demand is quicker turn-round of railway trucks. Pressure on rolling-stock can be eased appreciably by capacity loading of all wagons.

It's a war-time responsibility of all rail-freighters to speed up the movement of railway wagons.

KEEP WAGONS MOVING!

Seasonal Work for Beekeepers

Possibilities of Package Bees in New Zealand

AS indicated in last month's notes, for the purpose of testing the practicability of establishing early broods of bees in the colder parts of the South Island, the Apiary Instructor at Auckland, working in co-operation with a beekeeper at Whangarei, arranged to send twenty combless packages of bees to the South Island. Ten packages were dispatched to Central Otago, four to Balclutha and six to Waikaka. Each package contained a young Italian queen and 3lb. of bees with 6½oz. of candy for feed. All packages left Whangarei on October 15, and, after travelling by road, rail, and sea nearly 1000 miles, they reached Otago and Southland on October 18, when the nearby hills in Central Otago district were white with snow. The condition of the bees on arrival was excellent, and in no package was a greater number than forty dead bees found.

On arrival, the bees were fed a warm syrup of sugar and water. In some packages the syrup was painted on to the wire gauze, and in others it was poured on to pads of buttercloth placed on the cages. After the bees had been fed and allowed to settle down, the queen was liberated in each package and the bees fed again. They were next installed in their hives on nine drawn-out combs with a division board feeder containing warm syrup. The bees were examined the next day and all the feeders were again filled, by which time the queens had in most cases started to lay.

Artificial Feeding.

The package bees did not make much progress with brood-rearing until plenty of pollen was available. Artificial feeding was carried out for a few weeks, the average amount of sugar fed to sixteen packages being 6.6lb. per hive, while four packages were fed on honey, receiving 12lb. per hive.

Artificial feeding was continued in the Ranfurly district, Central Otago, until the end of November, when the clover began to yield nectar, which was about ten days earlier than usual. In the Waikaka district the package bees were fed twice a week after arrival, the last feed being given about November 10. From these feeds the bees were able to carry on until the honey flow started about November 25.

(Continued from February Issue.)

The packages received at Balclutha were each given 4lb. of honey on arrival, and a month later each package was given a further 8lb. of honey in the comb. The beekeeper concerned stated that the above quantity proved to be far in excess of their requirements.

The sources of nectar and pollen in the Ranfurly and Waikaka districts were practically confined to white clover, while at Balclutha white clover predominated, with a quantity of mixed flora from gardens and other pasture sources. The pollen supply was supplemented from the *Pinus insignis* trees.

The progress made in brood rearing in the Ranfurly and Waikaka districts was slow until early in December, when the supply of pollen became plentiful. From then onwards the bees built up rapidly and maintained full brood nests until the end of the season.

At Balclutha the bees were able to obtain pollen from flowers in the local gardens and from early-flowering clover pastures. This gave an impetus to brood-rearing right from the time the bees were established.

Weather Conditions.

Weather conditions after the arrival of the packages were very similar in each district. During October mainly fair weather conditions with normal temperatures prevailed; in November high winds and cold temperatures were experienced, the weather improving towards the end of the month; December was a warm dry month with heavy dews, ideal for nectar secretion; January was very hot early in the month; then, for a fortnight, squally weather was experienced, followed by high winds, warm temperatures predominating for the last week of the month. In Ranfurly district January was unusually dry, cutting short the honey flow. In February mixed weather was experienced, and the honey flow practically ended. The weather, however, was a little more favourable for nectar secretion than normal seasons.

As soon as pollen became plentiful the bees built up rapidly, and were soon on a par with other colonies in regard to strength. Two of the twenty packages are reported to have superseded their queens within a few weeks of arrival.

No extra attention was required by the package bees once the honey flow had started.

The results obtained compare favourably with the average results of other apiaries operated by the beekeepers concerned.

Practical Proposition.

From the foregoing it may be seen that it is a practical proposition during a normal season to transport combless packages of bees from the north of New Zealand 1000 miles to the south, and obtain a crop of honey from these bees sufficient to cover the cost of the bees and transport and return a margin of profit for the beekeeper.

It must be understood, however, that until the supply side of the industry for packages is properly established and beekeepers in the north and in other early districts are prepared to supply package bees regularly, too great an anticipation for packages must not be indulged in by would-be purchasers until they have made definite arrangements with the suppliers.

(*Continued on page 212.*)

REMINDERS FOR THE MONTH

Robbing starts very easily in an apiary at this time of the year.

Hives should not be kept open any longer than is absolutely necessary for the removal of the surplus crop of honey.

All supers taken from the hives should be covered and quickly removed to the honey house away from flying bees.

No attempt should be made at the close of the season to place wet combs back on the hives during the day time for cleaning-up purposes.

The sudden cessation of the nectar flow when the colonies are still strong leaves a large force of field bees with no work to do.

Any undue disturbance of the hives in the autumn will cause the bees to become vicious and troublesome to the beekeeper.

Until the surplus field bees die off they will quickly attack and rob any weak or unprotected colonies at the close of the honey season.

T. S. WINTER, Senior Apiary Instructor, Wellington.

The Principles of Poultry Feeding

PART 2.

By F. C. BOBBY,
Superintendent of Poultry Husbandry,
Wellington.

IN Part I, published in the February issue of the "Journal," a description was given of the digestive system of a fowl, or, in other words, the machinery which deals with the food or raw material supplied to a bird for the maintenance of its body and the production of eggs. Having discussed this essential information, it now becomes necessary to study the food consumed by birds—not in terms of the various meals used and familiar to all poultrykeepers, but in terms of the essential food materials within these meals. The blending of meals to form a satisfactory poultry mash will be described in Part 3 under "Practical Methods of Feeding and Rations."

Once again it is impossible to discuss and to comprehend the theory of feeding without the use of some technical terms, but these will be strictly limited in number. All poultry foods contain certain essential food materials, which are classified under:—

(a) Proteins	(d) Minerals
(b) Carbohydrates	(e) Vitamins
(c) Fats	(f) Water

Before studying these groups individually it will be of interest to note the materials, again classified in groups, which go to make up a bird and an egg—since, after all, the food given to a bird is expected to maintain that bird in health and to aid it in the production of eggs.

Take first, the composition of an average White Leghorn hen—the entire bird—

Protein ..	21.6%	Minerals .	3.8%
Fat	17.0%	Water ...	55.8%

and now an average egg (with shell) laid by that hen—

Protein .	12.8%	Minerals .	10.6%
Fat	10.5%	Water ...	65.9%

It will be seen at once that the same essentials occur in food as in the hen and her egg, with two important exceptions—carbohydrates and vitamins. The former are present, but in a different form, and the vitamins, while present in the hen and the egg, are in too small quantities to be measured in percentage form. This matter will be discussed at greater length under another heading. It will now be obvious that the proportions of these food essentials fed to birds must bear some resemblance to the proportions existent in the bird and egg. Hence, poultry meals have to be blended carefully and balanced for the food material in them.

The next step is to examine in more detail the groups of food material found in poultry mashes or grain mixtures.

(a) Proteins

Substances which are mainly composed of protein and commonly recognised are meat, fish, and the white of egg, but it must also be remembered that there are vegetable forms of protein which cannot be easily recognised, although present in varying quantities in poultry foods, such as wheat, barley, oats (and meals made from these grains), green foods, etc. Proteins are essential for poultry, and the muscle, skin, feathers, and internal organs are largely composed of this food material. Further, it has already been shown that eggs contain on an average 12 per cent. protein.

Poultrykeepers should remember, however, that an excess of protein in a poultry ration is not only wasteful, as the birds cannot make proper use of it, but also dangerous. There are certain parts of proteins which a bird cannot make use of, and have, in consequence, to be passed out of the body as waste material. This waste material passes out through the kidneys, and any excess quantity may cause serious injury to these kidneys. Further, most poultrykeepers know that heavy quantities of protein given in, say meatmeal, stimulate egg production, and this in turn may pass a point of safety, which is usually referred to as "forcing egg production."

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(b) Carbohydrates

Carbohydrate is merely a technical term for commonly known substances, such as starch, sugar, and the less digestible part of foods referred to as fibre. Foods which contain large proportions of carbohydrates are maize (69 per cent.), barley (68 per cent.), wheat (69 per cent.), and pollard (64 per cent.). Birds require carbohydrates to supply them with energy and body heat. As a bird cannot move a foot, a wing, or turn its head without using up energy, it will be realised that continuous supplies of carbohydrates for the production of energy are necessary. If, however, more carbohydrates are digested by a bird than are required for immediate use for energy or body heat, then these carbohydrates are changed into fat.

Thus, in practice, if birds are fed with a ration containing an excess of carbohydrates and insufficient protein to stimulate satisfactory egg production, such birds are likely to convert these carbohydrates into excess fat. Obviously, this must be prevented with laying stock, but encouraged with birds being fattened for table purposes.

It will now be understood why carbohydrates, although essential in feeding a bird, do not appear in the chemical composition of that bird, as quoted earlier in this article. Speaking generally, the carbohydrates are in the process of being used up for energy and heat or have been converted into fat.

(c) Fats

A description of fat is unnecessary, but it should be noted that in discussing food materials the term "oil" has a similar meaning, both being alike in chemical construction. It has already been indicated that fat acts as a body reserve for supplying energy and heat, and both carbohydrates and fat in excess of immediate requirements are stored up as a fat reserve in the body. Again, during egg production a bird must contribute fat for the yolk of each egg to the extent of 10 per cent. of the total weight of that egg.

Although this reserve of fat in a producing bird is so essential, birds are not able to digest satisfactorily excess quantities of fat or oil from a poultry food. While excess carbohydrates are easily converted into excess fat in a bird's body. the **presence of excess fat in a food** is undesirable, as it may—

(1) Cause digestive troubles in the intestines, as may be observed when meatmeal containing a high percentage of oil or fat is fed to birds; mustard-coloured and frothy droppings are visible evidence of this excess of oil.

(2) If an excess of fat is assimilated (absorbed by the digestive system) a heavy strain may be placed on the liver, which then becomes yellow, soft, and in a state of degeneration.

Enough has now been said to indicate the necessity for carefully controlling the amount of protein and fat in a poultry ration when blending the necessary meals in common use.

(d) Minerals.

Minerals to most poultrykeepers mean substances such as limestone flour, oyster shell dust, common salt, and the like. While these are the type of materials added to mashes **to increase** the mineral content, it should be remembered that most poultry foods contain minerals in the same way that these foods contain protein, carbohydrates, and fat. The fact that additional minerals are mixed into a poultry mash indicates that the meals used for poultry mashes contain in themselves insufficient minerals for modern poultry. Although not present in big quantities in the bird, the egg or poultry foods, minerals are indispensable for the maintenance of good health, apart from their use in shell formation for eggs.

Much has been published in recent years about the mineral requirements of poultry, but there appears to be ample evidence to show that the only additions necessary to the average laying or growing mash are limestone flour or oyster shell dust, steam bone

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flour, and common salt. All other mineral elements are present in sufficient quantities in the poultry foods in common use.

(e) Vitamins

"Vitamins" has become a household word for some years, and poultrykeepers have become aware that this most interesting group of substances plays an important part in poultry feeding. Although absolutely essential for health and growth, vitamins are present in foodstuffs in only minute quantities as compared with the other essential food materials already discussed. It is not possible, therefore, to refer to the quantity of any given vitamin in either the body of a bird, an egg, or a food in terms of percentage by weight as in the instance of other food materials.

While a number of different vitamins have been recognised today and each named with a letter of the alphabet (that is, vitamin A, vitamin B, etc.), only two are of interest and importance to the practical poultrykeeper. The two vitamins in question are vitamin A and vitamin D.

Vitamin A may be termed in the first place as a growth-promoting vitamin. Chicks receiving a ration lacking this vitamin become unthrifty, being slow to develop, and lacking in proper growth. In addition to being a growth-promoting vitamin, vitamin A also builds up in a bird a resistance to infections. Fortunately, it is comparatively easy for poultrykeepers to supply an adequate amount of vitamin A. Excellent sources of this vitamin are to be found in green alfalfa (lucerne), carrots, lettuce and spinach, while maize, clover, kale, and grass supply adequate amounts. The best source of all available to poultrykeepers is to be found in cod liver oil, and herein lies part of the value of this oil during winter for both young and adult stock.

Vitamin D is of great importance to young chickens broodered indoors during their first four or five weeks after hatching. This vitamin protects chickens from rickets, or improper hardening of their bones. If chickens are exposed to direct sunlight for a reasonable portion of each day this sunlight will build up vitamin D in the chick's body and protect it from rickets. On the other hand, chicks broodered indoors during late winter or early spring, when sunlight is not too plentiful, require an additional source of vitamin D, and this can be supplied by using cod liver oil. There is no other satisfactory source of this vitamin available to poultrykeepers.

(Continued on page 212.)

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Federation of Young Farmers' Clubs

Annual Meetings: An Appeal to Clubs and District Committees

CLUB Chairmen and Secretaries are reminded that the annual meetings of clubs should, as far as possible, be held by the end of this month. At the annual meeting of each club the annual report and balance-sheet (duly audited) should be presented, and the club officials—Advisory President, Advisory Members, Club Chairman, Secretary, Treasurer, Committee, etc.—should be appointed. The election of three delegates to the annual district meeting should also take place; two of these delegates should be active club members, while the third should be an advisory member.

The annual general meeting of representatives of all clubs in each district should be held before the end of April. As in the case of clubs, the annual report and balance-sheet should be presented, and the District Officers and the District Executive Committee should also be appointed. The meeting should elect three delegates to the Council for the area in which the district is situated (two to be active club members, and one an advisory member). It is suggested that, in regard to both club and district annual meetings, the officials should carefully peruse that part of the constitution relating to their meetings, in order that the correct procedure may be carried out. When filling the offices of chairman and secretary, it is recommended that consideration be given to the appointment of members not liable for military service.

It is desirable to hold the annual meetings of the various units by the correct dates as laid down in the constitution so that there may be a complete "follow through." The club annual meetings should be held first, the district meetings next, followed by the Council annual meetings and then the annual general meeting of the Federation. This facilitates the smooth working of the organisation, encourages fuller representation, and allows recommendations, remits, etc., to be considered by each body in turn.

The Y.F.C. movement in New Zealand is at present passing through a very critical period. So far, since the beginning of the war, the many difficulties and handicaps have been faced up to and overcome in a truly remarkable manner. This has been due to the efforts of members, both active and advisory, who are keenly interested in the movement and who appreciate its real worth.

Effect of Pacific War.

Since the outbreak of war in the Pacific, the difficulties have been intensified, and it appears likely that further clubs will be forced to go into recess. Depletion of membership is a serious handicap, but transport appears to present the greatest difficulty at present, and with the rigid restrictions so necessarily imposed on petrol, it is becoming harder, month by month, to hold successful meetings, more particularly in the sparsely-populated areas. It is felt, however, that even this difficulty can be overcome, except in cases of long distances, if the keenness and interest in club work can be maintained. Many club members are already using bicycles and horses in order to attend meetings, thus exemplifying the truth of the old saying, "Where there's a will there's a way."

The movement has suffered in many ways, not the least being the depletion of membership through overseas service. This loss has been aggravated by the fact that a big proportion of the "leaders" from among the active members are now "doing their bit" for their country. Membership has been kept up in many clubs by means of successful "drives" for younger members, and has resulted in the general age-average being lowered. It is now more than ever necessary to rely on the older members of the farming community to encourage the young men and assist the clubs to carry on. The movement owes a great debt to the advisory members and others who, in the past, have done so much to put the organisation on a sound footing, and the Federation now finds it necessary to appeal to them to help to maintain at least the framework of the organisation so that there will be something left upon which to rebuild after the war.

Example in Great Britain

The National Federation of Young Farmers' Clubs in Great Britain has set us an example by carrying on in the face of difficulties far greater than our own. It is surely no exaggeration to state that the Y.F.C. Movement in New Zealand represents one of the liberties and privileges for which our members overseas are fighting, and those of us who are remaining behind to "do our bit" on the home-front should make every effort to ensure that the organisation is here for them on their return. The movement has proved of inestimable value in the past, and there is no doubt that, given the opportunity, it can do good work in assisting in reconstruction and rehabilitation after the war.

It is easy to follow the line of least resistance, but clubs and District Committees are urged to weigh every consideration before allowing the movement to lapse. One thing is, of course, certain: We have to win the war. That is, with all of us, the first consideration. But the time has not yet come when we are forced to give up everything, particularly an organisation so valuable to the farming community as the Y.F.C.

Manawatu District Stock Judging

THE following are the results of the Manawatu District Y.F.C. Stock-judging Competition held at the recent Y.F.C. Show at Feilding:—

Senior Club Teams

Romneys.—Kairanga B Club (A. Nielson) 115 points.

Southdowns.—Rongotea A (R. O. Gloyn) 157 points.

Clydesdales.—Oroua Downs A (C. Christiansen) 68 points.

Dairy cattle.—Kairanga B (D. Prentice) 100 points.

Bacon pigs.—Feilding (N. Hansen) 112 points.

Junior Club Teams.

Romneys.—Feilding Club (D. G. Colquhoun) 35 points.

Southdowns.—Rongotea A (I. R. Hunt) 157 points.

Clydesdales.—Oroua Downs A (F. Shailer) 76 points.

Dairy cattle.—Kairanga A (B. Sorenson) 150 points.

Bacon pigs.—Feilding (R. T. Thurston) 112 points.

Senior Club Individuals.

Romneys.—A. Nielsen, Kairanga, 115 pts., 1; S. Last-Harris, Bulls, 85 pts., 2; J. McKinnon, 80 pts., 3.

Southdowns.—R. O. Gloyn, Rongotea, 157 pts., 1; C. B. Anderson, Bulls, 131 pts., 2; A. Stewart, Bunnythorpe, 120 pts., 3.

Clydesdales.—T. D. Macdonald, Oroua Downs, 72 pts., 1; B. S. Pedersen, Oroua Downs, 52 pts., 2; J. Proctor, Oroua Downs, 40 pts., 3.

Dairy cattle.—G. Mulligan, Feilding, 70 pts., 1; M. F. Moffat, Oroua Downs, 50 pts., 2; R. Hill, Rongotea, 40 pts., 3.

Bacon pigs.—N. Hansen, Feilding, 112 pts., 1; C. M. Houghton, Kairanga, 110 pts., 2; D. Malone, Kairanga, 92 pts., 3.

Junior Club Individuals.

Romneys.—D. G. Colquhoun, Feilding, 35 pts., 1; W. Bennet, Kairanga, 34 pts., 2.

Southdowns.—M. W. Marshall, Waituna, 156 pts., 1; I. R. Hunt, Rongotea, 121 pts., 2.

Clydesdales.—L. Marsden, Oroua Downs, 1.

Dairy cattle.—A. Goodman, Kairanga, 90 pts., 1; A. Moffat, Oroua Downs, 85 pts., 2; K. Stanley, Apiti, 30 pts., 3.

Bacon pigs.—R. T. Thurston, Feilding, 124 pts., 1; D. Malone, Kairanga, 92 pts., 2; E. N. Pedersen, Oroua Downs, 55 pts., 3.

High School Teams.

Romneys. — Feilding Agricultural High School, No. 8, R. O. White, 45 pts.

Southdowns.—Feilding Agriculture High School, No. 3, J. D. Hughes, 130 pts.

Clydesdales.—Palmerston North, No. 1, R. Morris, 88 pts.

Dairy cattle.—Feilding Agricultural High School, A. J. Slack, 80 pts.

Bacon pigs.—Feilding Agricultural High School, No. 4, R. T. Thurston, 135 pts.

High School Individuals.

Romneys.—J. Law, Palmerston North, 30 pts., 1; I. Best, Feilding, 28 pts., 2.

Southdowns.—K. G. Mitchell, Palmerston North, 141 pts., 1; J. D. Hughes, Feilding, 130 pts., 2; E. J. Hunt, Feilding, 115 pts., 3.

Clydesdales.—R. Morris, Palmerston North, 88 pts., 1; N. M. Weir, Feilding, 40 pts., 2; J. L. Carr, Feilding, 38 pts., 3.

Dairy cattle.—T. Laurence, Palmerston North, 100 pts., 1; A. J. Slack, Feilding, 80 pts., 2; M. Harvey, Palmerston North, 70 pts., 3.

Bacon pigs.—R. T. Thurston, Feilding, 135 pts., 1; I. Lusty, Feilding, 125 pts., 2; K. Collier, Palmerston North, 95 pts., 3.

Mid-Canterbury Stock Judging Contest

THE results of the Y.F.C. Stock Judging Contest at the Ashburton A. and P. Show were as follows:—

H. Bennett, Ashburton Club, 1; R. Penney, Methven Club, 2; A. J. McKenzie, Hinds Club, 3; D. Tait, Hinds Club, 4.

Ashburton Club won the challenge shield for the most points in the inter-club competition. Mr. R. J. Low acted as judge, and also kindly supplied the Border and Leicester sheep for the competition.

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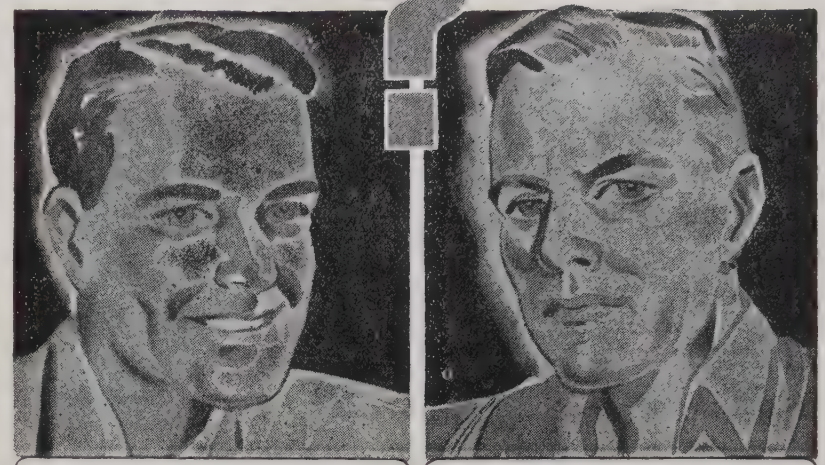

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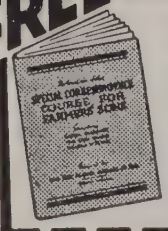

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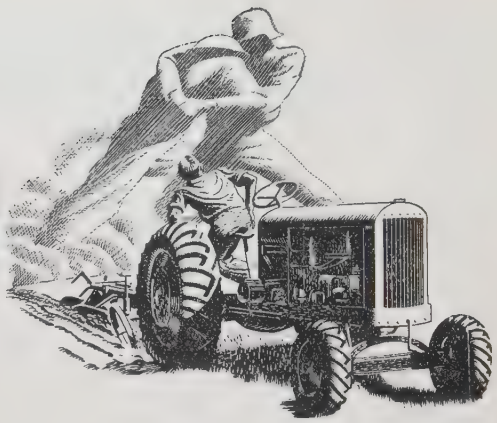

ARMY.

Name.	*Club.*
Adam, A. H.	Crookston
Adam, I. D.	Crookston
Adams, M.	Blenheim
Ahradsen, K. G.‡	Johnsonville
Aiken, A.	Arapohue
Anderson, E. W.	Upper Clutha
Anderson, W.	Enfield
Atkins, R.	Upper Clutha
Backhouse, T.	Waimana
Bateman, E. K.	Dannevirke
Bates, R. H. K.	Wairoa
Bayley, A.	Te Karaka
Bell, B.	Waimana
Benseman, L. C.	Moutere
Billing, A. H. R.	Inglewood
Boag, J. A.†	Wairoa
Boynton, C.	Waimana
Burke, W. H.	Johnsonville
Burnett, P. G.	Dovedale
Butler, L. H.	Inglewood
Brand, J.	Otama
Bright, C. L. (Dick)	Te Karaka
Brooks, J.	Crookston
Brownlie, J. N.	Wairoa
Brown, H.	Johnsonville
Brown, W.	Moa Flat
Bryant, N.	Johnsonville
Caithness, A. A.	Milford
Calder, I. W.‡	Maungati
Cameron, L.	Seddon
Campbell, J. L.	Kati Kati
Campbell, G.	Inglewood
Capamagian, H.	Kati Kati
Capel, J. W.	Cannington
Carter, P. G.	Levin
Caughley, B.	Arapohue
Coleman, D. F.	Amberley
Conway, F. G.	Seddon
Cook, S. R.	Apiti
Cooper, J. H.*	Dannevirke
Cornes, H. B. G.	Meeanee
Cotter, G. H.	Mangatainoka
Couch, L.	Mangatawhiri
Courtney, T.	Maungakaramea
Cowan, H.	Apiti
Cowan, K. C.	Apiti
Clearie, A.	Alexandra
Cleary, H. L. B.‡	Arapohue
Crandle, F.	Arapohue
Dale, R. D.	Milford
Dalton, J. T.	Inglewood
Davies, V. J.	Dovedale
Deeming, R. P.	Maungakaramea
de Latour, D.	Wairoa
de Latour, P. A.	Wairoa
de Latour, B.	Wairoa
Demmocks, E.	Amberley
Devery, N.	Wairoa
Devery, W. E. G.	Wairoa
Dodds, A. M.	Otama
Dreadon, R.	Arapohue
Durdy, F. C.	Wairoa
Dymock, J. H. W.	Te Karaka
Dymock, C. G.	Te Karaka
Fairey, E. L.	Meeanee
Ferguson, A. L.	Seddon
Ferguson, I. C.	Seddon
Fenton, —	Waimana
Forbes, G. B.	Mangatainoka
Gardiner, J. E.	Amberley
Gardiner, C. W.	Dovedale
Gilbert, H.	Kati Kati
Goodley, R. E.	Wairoa
Grace, C.	Bulls
Grainger, C.	Kati Kati
Gray, S. L.	Bulls
Greig, A. R.	Blenheim
Griffiths, W. J.†	Meeanee
Hair, M.	Levin
Hair, D.	Levin
Hamilton, C.	Tauranga
Hammond, M. E.	Seddon
Hall, J. G.	Wairoa
Handcock, C. A.	Ballance
Hart, A.‡	Bulls
Harvey, J. K.‡	Wairoa
Haugh, J.	Moa Flat
Hedges, W.	Wellsford
Hellewell, A. S.	Enfield
Hemmings, G. L.	Apiti
Hercock, M.	Ballance
Hodgson, J. C.‡	Wairoa
Howell, R. H.	Cannington
Hurford, W. L.	Ellesmere
Jackson, B. A.	Johnsonville
Jane, P. S.	Moa Flat
Jardine, J. E.	Wairoa
Jessep, P. A.	Wairoa
Jessep, J. T.	Wairoa
Jobson, W. G.	Wairoa
Jolley, M.	Mangatawhiri
Jones, M.	Mangatawhiri
Jones, H. T.	Mangatawhiri
Kerr, W. T. W.	Dannevirke
Kerrison, A. R.	Mangatainoka
Kerrison, A. P.	Mangatainoka
Kewish, P.	Harrisville
King, W.	Meeanee
Kinraid, T. C.	Alexandra
Kinsella, A.	Waimana
Koia, D. R.‡	Meeanee

* Killed in action.

† Missing.

‡ Prisoner of war.

Name.	Club.
Lamb, A. J.*	Cannington
Lambie, R.	Arapohue
Lane, J.	Tauranga
Leabourne, B.	Mangata-whiri
Lewis, C. E.	Amberley
Legg, J. C.	Ellesmere
Logan, W. J.	Otama
Love, D. S.	Moa Flat
Love, N.	Moa Flat
Lovell, R. J.	Blenheim
Maitland, J. E.	Mangata-whiri
Martin, B. W.	Cheviot
Martin, A. C.	Enfield
Mackay, P. S.	Otama
McCarthy, A. J.	Alexandra
McDonald, D. M.	Dannevirke
McGiffert, A. S.	Amberley
McKay, F. K.	Wairoa
McKenzie, O. D.	Wairoa
McKenzie, A. E.	Wairoa
McKenzie, J. E.	Apiti
McKenzie, A. S.	Moa Flat
McKenzie, G.	Moa Flat
McKenzie, G. A.	Clinton
McMeekin, J.	Otama
McNaughton, R.	Enfield
Menzies, C.	Waimana
Merriman, G.	Tauranga
Middlemiss, S. F.	Blenheim
Millard, G. K.	Blenheim
Milne, J. R.	Alexandra
Montgomery, R. G.	Meeanee
Moore, T. B.	Ellesmere
Moore, F. G.	Ballance
Morgan, R. W.	Inglewood
Murray, N.	Moa Flat
Neal, A. V.	Seddon
Neal, J. W.	Blenheim
Nelson, A.	Meeanee
Nesbitt, E. B.	Meeanee
Newland, H.	Mangata-whiri
Newton, E. A.‡	Te Karaka
Newton, G. T.	Amberley
Nichols, C.	Waimana
Nicholl, J. H.	Te Puke
Park, J. E.	Crookston
Parker, V.	Mangata-whiri
Paul, R.	Moa Flat
Perfect, J.	Waimana
Porter, G.	Maunga-karamea
Ramsbotham, P.	Kati Kati
Register, N. R.	Blenheim
Revie, I. D.	Crookston
Richmond, A. P.	Wairoa
Riddell, J.	Moa Flat
Rose, A. W.	Blenheim
Ross, J. M.	Ballance
Ross, A. M.	Ballance
Rowland, W.	Enfield
Schofield, R. C.	Amberley
Scott, E. T. A.	Wairoa
Scott, A.	Cannington
Shanks, A.	Tauranga
Silcock, C. W.	Dovedale
Smith, P.	Wairoa
Smyth, N.	Wairoa
Spanhake, H.	Waimana
Stanley, D.	Wairoa
Stewart, I. J. W.†	Maungati
Steel, G. A.	Alexandra
Studholme, J. T.	Arapohue
Sullivan, A.	Waimana
Sutton, D. L.	Moa Flat
Swears, B.	Mangata-whiri
Taylor, W. D.	Wairoa
Tomlinson, D. J.	Dovedale
Turnbull, N.	Amberley
Thomas, I. L.	Wairoa
Thorburn, L.	Maunga-karamea
Trewby, H.	Wairoa
Yuill, W.	Enfield
Voss, A.	Tauranga
Waldman, R. G.	Mangatai-noka
Walker, G.	Inglewood
Wallford, R. F.	Kati Kati
Watt, A.	Waimana
Watson, W. A.	Wairoa
Waswo, J. W.	Inglewood
Wickens, R.	Waimana
Williams, V. H.	Cheviot
Win, E. P.‡	Dovedale
Win, R. B.‡	Dovedale
Winter, B. G.	Wairoa
Wood, J.	Tauranga
White, R. S.	Otama
Whyte, L. H.	Crookston
Wright, A. S.	Kati Kati

AIR FORCE.

Alexander, E. K.	Harrisville
Bradley, D.	Welsford
Church, R.	Levin
Dalton, H. T.	Inglewood
Dunford, —	Bulls
George, H. C.*	Alfredton
Gordon, J. B.	Moa Flat
Hunter, R.	Mangata-whiri
Kempton-Werohia	Te Puke
Lyall, G. R.	Milford
Morton, R. W.	Moa Flat
Palmer, T. R.	Bulls
Riddell, R.	Moa Flat
Sainsbury, P.	Wairoa
Smith, R. J.	Johnsonville
Thurston, W. G. D.	Blenheim
Verity, V.	Cannington
Voss, P. S.	Tauranga
Voss, J.	Tauranga
White, R.	Waimana
Wilson, M.	Tauranga

NAVY.

Bell, L. H.	Clinton
Curran, R. (Fleet Air Arm)	Te Puke
Carrick, F.	Arapohue
Cranswick, J.	Waimana
White, B.	Waimana
Murray, C. (Fleet Air Arm)	Blenheim

Among the Clubs:

Notes on Activities

WESTERN SOUTHLAND.

Orepuki.—Field day at Mr. McPherson's woolshed. Pahia. Demonstrations as follows:—Grinding and Care of Shears (Mr. J. Beaton); wool-classing and binning (Mr. F. Church); shearing (Messrs. J. Beaton and F. Church). There was an attendance of 35. At the club meeting the question of the club going into recess was considered, and it was decided to continue activities. Letters of appreciation to be sent to helpers at the shearing field day. Samples of ergot and grasses to be obtained and local schools to be contacted with a view to organising "drives" for the collection of ergot. Three-minute impromptu speeches by members.

SOUTH OTAGO.

Lawrence.—Business meeting. Discussion as to whether the club should go into recess for the war period; it was decided to carry on.

NELSON.

Murchison.—Discussion on collection of ergot.

WAIRARAPA.

Masterton.—News of the deaths of Private W. Rayner and Trooper E. Falloon received with regret, members standing in silent respect for their fallen comrades. A letter of condolence to be sent to their parents. Arrangements for annual meeting. Interesting films exhibited by Mr. E. F. Wilson, dealing with South Africa, Europe and other places. There was an attendance of 21.

HOROWHENUA.

Levin. — Arrangements for annual meeting. Address by Mr. J. M. Irving on "Farming in Scotland." There was an attendance of 23.

Health Notes for the Farm

Blame the Female of the Species

Contributed by the
DEPARTMENT OF HEALTH

IF we could rely on the weather as surely as we can rely on our friend the mosquito, life would have a few more compensations. Unfortunately, it is not every summer that we get a real summer, but you can depend on it that every summer, real or otherwise, we get our mosquitoes. And, having arrived for the summer season, they usually stay around for the autumn and the Indian summer we sometimes get; and at the first sign of chill weather, away they go.

These creatures of mysterious habit and inexcusable ferocity come round year after year with unfailing regularity, and inflict on patient humanity a plague of irritation and torment out of all proportion to their size. They've been about again this year. They are still about in their hordes, as bold, as tenacious, and as troublesome as ever. And the problem of self-protection is just as pressing as ever.

A Prolific Pest

There are about a thousand different kinds of mosquitoes known. But, in spite of impressions that **might** have been gained to the contrary, they are not **all** found in New Zealand. There are, in fact, only a few species that find our climate salubrious, but what they lack in variety they more than make up for in numbers. From the point of view of the average victim, it's not the variety of mosquito which worries him so much as its biting power. And, talking of biting power, recalls the fact that it is the female of the species that causes all the bother. It is the female alone that sucks blood. The male is a vegetarian and a gentleman. He feeds—when he feeds at all—on the juices of plants.

Most people panic more at the sound of a mosquito than they do at the sight of the common house-fly, but as a source of disease the fly is infinitely more dangerous to humans in this climate. The mosquito can transmit such infections as yellow fever and malaria, but so far as New Zealand is concerned, conditions do not favour the development of these tropical diseases. In their own climate, of course, yellow fever and malaria take a tremendous toll of human life.

In many people the bite of the mosquito, besides being painful, raises blisters that can be a source of secondary infection, and when on the face can be very disfiguring.

Breeding Places First

As with flies, the best method of exterminating the mosquito is to attack its breeding places. The domestic mosquito, with which we are particularly concerned, will breed in any collection of water in or about the house—such as in buckets, tubs, cisterns or gutters, street pools and drainage. They do not breed in damp grass, as is popularly supposed. The eggs are laid upon the surface of the water. In a day or two they hatch, and within as few as nine days they may develop into the winged insects. The period of development, of course, is governed by the weather. Warm conditions favour rapid growth.

It is wise, therefore, to see that any collection of water or drainage is not allowed to lie about for more than a day or two at the most. Screen collections of water that cannot be removed, or, where this is impossible, apply a mixture of crude oil, or old crankcase oil, and kerosene. This suffocates the larvae which feed just beneath the surface of the water by choking the siphon through which they breathe.

Personal Aspect

Personal protection is usually the main consideration. It is claimed that the following mixture will keep mosquitoes at a distance for a long time:—2 oz. of citronella, 2 oz. of spirits of camphor, and 1 oz. of cedar oil. Put a few drops on a cloth and hang it by the bed.

If it is necessary to fumigate a room containing mosquitoes, 2 lb. of sulphur to about 1,000 cubic feet—that's about the size of a small room—is said to be very effective. To fumigate satisfactorily, the room must be sealed up, and articles of brass, nickel, or gilt, which are liable to tarnish, should be removed.

The proper strategy is to carry the war to the enemy's territory; that is, the breeding grounds. Carried out seriously, the trouble will be much more effectively checked.

POULTRY NOTES.—(Continued from page 207.)

They are also warned that green food does not protect their birds against rickets.

Some of the remaining vitamins, although necessary for poultry, are present in sufficient quantities in ordinary poultry foods as to render it unnecessary for additional amounts to be included in the average ration.

(f) Water.

All poultrykeepers realise the necessity for water with poultry of all ages. It has been claimed that laying stock will stop producing eggs sooner if deprived of water than if given ample water and not given food. Insufficient water will depress food consumption, and in due course production, while in hot weather egg size may also be decreased. Water should be available in adequate supply at all times. Birds should never be without it, however short the period.

(To be continued.)

APIARY NOTES.—(Continued from page 204.)

It is also necessary to have a supply of drawn-out combs available on which to hive the bees, because at the season of the year when packages are required bees will not as a rule draw out comb foundation. The early delivery of packages is essential.

To avoid the package bee industry being given a false boost in New Zealand, beekeepers should be cautious in its introduction until experience has proved its value over a number of seasons under varying conditions.

Thanks are expressed to Messrs. R. Bennie, Ranfurly, M. McKay Morrison, Balclutha, and G. Swanson, Waikaka, who obtained the packages of bees and furnished the data from which the foregoing has been compiled.

—D. S. ROBINSON, Apiary Instructor, Dunedin.

THE Good Neighbour

BY MARY

From Me To You

RESPONSIBILITY and leisure—you may wonder what connection there is between those two words, which have such widely-varying meanings. But they are closely related really, for responsibility is one of the greatest enemies of leisure. Responsibility—it comes upon us unawares, little by little, until one day we awaken to the truth that our responsibilities are weighing too heavily upon us, and our leisure periods have been ousted out.

Many years ago I knew a young girl, carefree and happy. I did not see her for a long time, and when I met her again she had quite changed from the laughter-loving lass I had known. I asked her what she had been doing down the years. She shrugged her shoulders and replied: "I have just realised—too late—the truth of Bacon's words, 'It is a strange desire, to seek power, and lose liberty.' That is what I have done—sought power, and lost my liberty. Every minute of my day belongs to someone else. I have attained what I desired, and have lost the right to be myself just when I like."

The more I thought about her words, the more they interested me. So I set out to see another friend of years, a man now growing old, who had spent his days in honest, hard work He explained his theory of life and success in these words of Fred Kelly's:

"Keys were my trouble. Keys are a penalty of civilisation. Each and every key on your key ring is a symbol of potential trouble. It represents responsibility, it fits a lock intended to protect something that you are concerned about. Everything you feel obliged to put a lock on means one more worry. Select a hundred men at random, study their faces for lines of care, and then count the number of keys they carry. Wouldn't there be a fair chance that the man with the most keys has the most worried expression?"

He was right. Keys had brought him many responsibilities, and he had found—also too late—that his leisure was lost.

You, too, mothers of children, have keys—perhaps not the keys that fit on to the keyring of the business man, but keys infinitely more precious—the keys to the hearts of your children. Yes, I know it is hard for you to fit in leisure periods, especially when all the kiddies are young, and need so much of your attention, but please, do try to force yourself into leisure —you will be more than repaid in the years to come. Set aside half an hour each day to forget your cares—it will be hard at first, but persevere. You must never let your responsibilities encroach too heavily upon your leisure, and if you are one of those people who must carry more than their fair share of the load of responsibility, then never forget to dilute it with plenty of play and laughter.

Mary

Mary's "At Home"

I WAS too busy at the time to enter in the New Year resolution competition, but I would like to say that my main resolution is to write to anyone I know who happens to be unfortunate enough to be ill either at home or in hospital, and to write regularly, irrespective of replies being received, as often a patient loves to get a letter, but so often does not feel up to writing herself. So often it is the case with correspondence that we start off with a rush and dash off a letter or two, then no more till often months have passed, although we quite meant to write regularly. Not only is it so with our everyday friends, but I find it has been so with folk who have started to write to lads overseas. Their interest, or enthusiasm should I say, has waned, yet if they would only stop to think what letters mean to those lads, I am sure they'd write soon, even those few lines of everyday happenings that do much to cheer. **—Roundabout, King Country.**

I HAVE the good fortune to have very good neighbours at the present time. My husband had to proceed to camp this week for the duration, and I will be left with a small daughter and two farms to manage. However, my good neighbours are

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coming to my assistance, and are going to help me as much as they can. I will not be the only farmer's wife left in this position. So from now on you can picture me shifting the sheep from one paddock to another, bringing in the cows, and feeding pigs and calves. What a time I will have!—**Fussy, Riwaka.**

ALTHOUGH I have never written to you before, I do enjoy your pages. "Recipe for a Garden" interested me very much, but I don't think I'll be ever able to try it out at my home. The garden was planned long before I came, and although I have tried to alter it to my liking, I can't do as much as I would like with it, especially as the land is of a sandy nature, and not all flowers grow successfully in it. However, I spend a lot of my spare time in the garden, and feel the better for it, and I am always reminded of that song, "Thank God for a Garden."

Just recently two unwanted guests have chosen to share my garden, and they are bent on damaging it. They are two dear little grey rabbits, who slip under the gate when all is quiet, and eat the phlox drummondi and verbenas, then move to the vegetable garden, and chew the young celery and the leeks planted out a few weeks ago.—**Betty G., Christchurch.**

THE petrol restrictions may not be very pleasant in some ways, but it is an ill wind that doesn't blow some good! Now I may garden in my oldest togs right through the afternoon without the sound of an approaching car making my heart turn over, and my hands fly to my dishevelled hair at the ghastly thought of unexpected callers. No longer do swanky cars, in a swirl of dust, bring insurance agents, sheep dip agents, seed agents, and all of that ilk to waste one's time and patience. A weekly grocer's van, and a twice weekly baker's van alone disturb the sprouting grass on the drive. In some measure at least the old-time country peace and quiet has returned.—**Country Cousin, Temuka.**

I THINK in these days we should all have a sense of humour. Life is difficult for most of us these days, and the tense political situation overseas keeps a worried frown on most faces. We could improve matters though if we allowed ourselves to enjoy the many amusing little incidents that happen in our daily lives. Humour is the spice of life, and without it we would be dull and solemn. It makes us tolerant, cheers and charms us. saves our sanity when we feel we are tried almost beyond endurance. If we can smile at ourselves, many of the troubles which seem overwhelming cause us far less worry.—**Jemina, Otago.**

MY seeds are coming into flower now, and big beds of flowers are the reward of months of waiting. There is much more thrill about growing one's plants from seed than buying from the seedsmen. Do you care for hollyhocks? We have kept ours going for years from seeds, and this year I have about ten new ones, after waiting about two years for them. Up here we are trying to haymake, and all the time the weather refuses to co-operate. Still we have managed to stack in between "heat-bursts" and rain drops.—**M., Feilding.**

HAVE you ever been hop-picking, Mary? It's a great experience. I love it, but it is such a busy time for me, and for many others too. The weather over here has been lovely lately, nice sunny hot days. Most of my neighbours are busy harvesting tobacco, which requires a lot of outside labour, and this is very difficult to get this season, as most of the young girls are doing war work.—**Fussy, Riwaka.**

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Cymru Am Byth

CYMRU AM BYTH.—No, not a printer's error—just a simple phrase meaning "Wales forever." Of course, if you happen to be Welsh, then it will need no explanation, and it is surprising what a large number of Welsh people are to be found tucked away in different parts of New Zealand. And this is the time of the year when the thoughts of all Welsh folk go back to their native land, for March the first is St. David's Day, the big day of the year to them. St. David is the patron saint of Wales, and on the first of March, wherever Welsh folk are gathered together, they do honour to him.

The Welsh are a picturesque people. I wonder if any of you have ever seen their national dress? Our picture illustrates three Welsh folk dressed in their costumes, and what a picture they would be if we could print them in colour! Just imagine cloaks of scarlet with a white lace fichu tied scarfwise round the neck, and a little frilling of lace peeping beneath the bottom of the tall black hats they wear. The Welsh people of Wellington have some of these colourful costumes, and it is a treat to see them gathered together, especially if they happen to be singing.

To many people, the mere mention of Wales conjures up visions of coal mines and smoky towns, but to those who know Wales it conjures up visions of the village choirs. Yet, perhaps this is only to be expected, seeing that most of the literature of Wales dwells on the south and always lays stress on the Welshman's love of singing. And it is not surprising to learn that to all Welshmen, be they from North or South Wales, the big event of the year is the National Eisteddfod.

In order to get to the root of the old customs of any country, one has to dig and delve among the dim archives of the past—to search the pages of history, and peer through the haze of centuries. To find the origin of the Eisteddfod one has to go back very far indeed, for the first ceremony of that nature took place before the landing of Caesar in Britain, although the first authentic Eisteddfodau was held in Caerwys in 1100. It is claimed to be the oldest ceremony of its kind in the world, as the rules for chairing a bard are set down in the Laws of Howel, the Welsh chieftain who lived about A.D. 940, and the same rules are observed today at the ceremony of the Gorsedd. The meaning of the word is actually a sitting or a session. It is held one year in South Wales, and the next in the North, sometimes in a city, sometimes in a small town. It is the big event of the year to a Welshman, and competitors from all over Wales come trooping into the town overnight to take part in the proceedings, or to watch from the ranks of the spectators.

Much speculation is rife as to the winners—choirs, brass bands, harpists all are there, but perhaps the greatest excitement of all is over the identity of the winner of the prize ode—the Bard who is about to be chaired. None but the judges know who it is until the Chief Druid, standing before the Gorsedd of Bards in their full regalia of white and blue robes, rises and himself announces the winner, using, of course, the nom-de-plume used by the poet. The Herald Bard and the Sword Bearer leave the platform, and march slowly and solemnly towards the blushing but successful candidate. He is then conducted back to the platform, where he is garbed in a purple robe edged with white fur; the Gorsedd Sword is held above

his head as the Chief Druid crowns him amid the cheers of the crowd.

Wales is full of tongue-twisters, and here is the title of one small village—see if you can pronounce it! Llanfairpwllgwyngyllgogerychwyrnd r o b - willlandysiliogogogoch. But its meaning is not as obscure as the name would suggest: "The church of St. Mary in a wood of white hazel near a rapid whirlpool and near St. Tysilio's cave close to a red cave."

Many of the Welsh airs are particularly beautiful and haunting. Everyone who has a love of music knows the songs "All Through the Night" and "The Ash Grove." The music of Wales is sung all round the world, and in the same way there is a bond of friendship that extends to every corner of the globe, embracing all those who come from Cambria. Wales may be only one small portion of that well-loved isle which is Britain, yet while she keeps her language intact and the scarlet dragon flying from her flagstaffs, she still has and ever will have her own individuality.

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Our Competition

"My Favourite Bedside Book"

AS your bedside favourites came tumbling out of my mail bag this month, I felt I wanted a month's holiday just to go to bed and read your choices. From those entries which I am printing you should manage to collect a very interesting set of books for your bedside table, and I am more than sorry that lack of space prevents me from printing many more entries. However, here is a short list of some of the other favourites—keep it handy next time you visit the library. "Jemima Rides," by Anne Hepple; "Rufus," by Grace Richmond; "Bees in Amber," by John Oxenham; "The Wind in the Willows," by Kenneth Grahame; "The Harvester," by Gene Stratton Porter; "These Old Shades," by Georgette Heyer; Palgrave's "Golden Treasury"; and "David Copperfield," by Dickens.

There's a collection for you to read and love. And now for the prize-winners: First we have "Plain Jane," of Taupiri, and second "Alleyne," of Wellington, with "Mrs. Vee," Waikato, highly commended.

First Prize

MY favourite bedside books are H. V. Morton's "In Search of" series. I find it impossible to have a favourite out of the four of them. The English and Scottish books remind me of places which in many cases I know personally, also a small part of the Welsh book. The Irish book has made me vow that if ever I go to England again, I shall certainly find time to visit Ireland.

H. V. Morton has a happy knack of understanding the nation he is writing about, and he can put himself in the other man's place. Once read, his books are truly bedside ones to be dipped into time and time again, either haphazardly, or with the purpose of re-reading a particular chapter. To those who know the British Isles I recommend H. V. Morton as a friend with whom to travel over the highways and byways again, and those who only know the countries by hearsay will find no truer portraits of the people than those in his books.—**Plain Jane, Taupiri.**

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My Dream Kitchen

SOMEWHERE in the back of the mind of every one of us lives the picture of our dream kitchen. Perhaps the possibility of our dreams materialising is remote, but this thought does not dim the brightness of our picture.

Do let us share your dream kitchens—maybe some of you will be lucky enough to have your dreams come true some day.

"MY DREAM KITCHEN."

Two prizes for you: First 10/- and second 5/-.

Let me have your entries before March 20, please.

"MARY,"
C/o "Journal of Agriculture,"
P.O. Box 3004,
Wellington.

Closing date: March 20, 1942.

Second Prize

I HAD not one moment's hesitation in deciding which was my favourite bedside book. My choice "In Tune With the Infinite," by Ralph Waldo Trine, is a book which breathes peace, strength, and comfort, all so difficult to obtain in these storm-tossed days. It was first published in 1899—my copy was given to me by my mother, and apart from the Bible, it is the book I value most of all.

"In Tune With the Infinite" explains in beautiful, inspiring, and simple language the fullness and joy of life when we come into harmony with the Divine Power. All fear anxiety, and mental distress automatically fade away, and we are filled with that "peace which passeth all understanding."

With my husband serving in Libya, and with two children to care for, I feel it would be dangerously easy to retire to bed these nights only to fret and worry over the dangers that seem to loom so close. Instead, I find that to read a few pages of this book last thing, immediately places my mind in a state of calm and tranquillity, and I fall asleep secure in the loving kindness of God.—**Alleyne, Wellington.**

Highly Commended

THOSE who have read all worthwhile books and classics will no doubt laugh at the idea of a cookery bedside book! But I have one entirely compiled by farm women, and I love to slip into bed and read it, planning the menu for the next day. Food values, and the golden rules of cooking have a thrill for me, and in this cookery book I learn much of use and pleasure for the household, young or old, rich or poor. "We eat that we may live." Cheerio, the kettle's boiling, and the scones brown!—**Mrs. Vee, Waikato.**

MY favourite bedside book is "Gone Rustic," by Cecil Roberts. I have had my precious copy for a number of years now, and have read it many times—at least, several times right through from start to finish, but usually I choose a chapter to suit my mood. To my mind, a bedside book should be quiet, yet beautifully written in a sincere and eloquent style. Cecil Roberts has written several books around the theme of his beloved Pilgrim Cottage, but "Gone Rustic" is the one I love best. In its pages he portrays simple, everyday happenings in the most fascinating and charming way—the making of a garden path, the smell of apples stored in the attic, roasting chestnuts, and a hundred other simple, intimate things, intermingled with word pictures of unusual flowers, shrubs, and trees. Then there are thumbnail character sketches of the local postmistress, the gardener, chance visitors, the housekeeper longing to find dust and sweep it up. Of all these things I could never tire. And these things entertain my mind sweetly, and make it ready for refreshing, contented sleep.—**A.M.D., Inglewood.**

MANY folks of course place the Good Book above all others, and would not miss their nightly chapter for anything. Others again turn to "collections"—of prayers, of poetry, of rare and lovely thoughts. I am an ardent believer in all three, and from them I draw unfailing refreshment of spirit. Poetry, prayer, and praise, at their simplest as well as their greatest, are almost identical terms, and each in its way brings to those who need it "the peace of heart which means strength of hand."—**London Lass, Wellington.**

"CRUMP Folk Going Home." I wonder how many of our readers know that name already? I am sure that those who had read it will agree with me that it is a book any lover of the land would enjoy, and to you who haven't yet read it, I would thoroughly recommend it. Written by Constance Holme, it gives a vivid picture of the social life of Westmoreland, together with delightful descriptions of sheepdog trials, and market days. I am sure you would like Deborah, who was willing to give herself in marriage to a man she did not love, because of her love for that piece of land called Crump, but luckily she did not have to make this sacrifice. This book was included in the world's classics in 1934, so it is not really recent, but it is good reading for a bedside book.—**T.C., Ngaio.**

THERE are generally three books on my bedside table—my one of L. M. Montgomery's books, a collection of verse, and "Moi-Meme." Ever since I can remember I have loved L. M. Montgomery's books. I have sympathised with "Anne of Green Gables," laughed with "Anne of Windy Willows," dreamed with Anne and her children at Ingleside. "Emily of New Moon" and I are kindred spirits, for I too have a diary. Mine is a recent arrival, and has the awe-inspiring name of "Moi-Meme." This book is always being disturbed, for as the spirit moves me I tell some thought or share some sorrow with this ever-ready friend. And my other bedside friend is a collection of verse containing poems old and new.—**Moi-Meme, Gore.**

Helpful Hannah Says . . .

When you are washing lace, use soap jelly, rinse in cold water, and iron on the wrong side under muslin or tissue paper. Never iron Irish lace; wash in warm water, shake, and pin on a board to dry.

* * *

If you want to give a delicious flavour to your tomato sandwiches try this tip: Before using the knife to butter the bread, rub a cut onion along each side of the blade. But be very sure to use a stainless steel knife.

* * *

Kitchen scissors are invaluable. Use them for cutting up rhubarb, and also for cutting mint for mint sauce—very much quicker and easier than the old method of chopping it with a knife.

* * *

If your clothes have become too dry to iron, use a sponge to dampen them as you go along. The sponge retains the water, and ensures an even dampness.

* * *

Put a pinch of salt into the vase with African marigolds—this keeps the water from smelling, and also makes the flowers last longer.

A few drops of almond or olive oil rubbed over the interior surface of a jelly mould before pouring in the liquid will prevent the set jelly from breaking, and will ensure it turning out without a flaw.

* * *

To whiten bone knife handles or piano keys which have become yellowed, rub them with a flannel moistened with peroxide of hydrogen and water.

* * *

To press pleated skirts in a professional manner, dampen your pressing cloth in a weak boiled starch solution, wring out, and press in the usual way. You will be surprised!

* * *

If you like crisp crackling on your roast pork, rub lemon juice over it before cooking.

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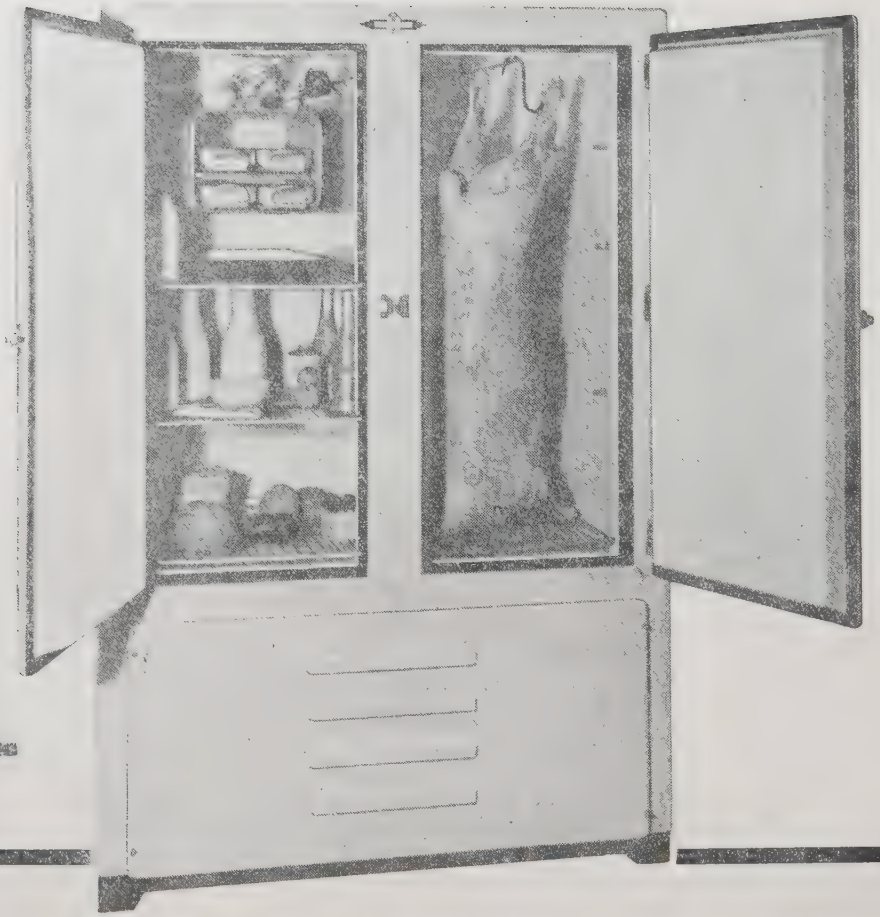

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. . . How Does Your Garden Grow?

MR. HYDE is keeping you busy in the garden these days, isn't he? But what could be pleasanter than an hour spent in the garden in the cool of the evening, whether you are digging, chasing weeds, or enjoying the fruits of your labours of other days? This month our expert adviser tells us how to go about autumn work in our gardens.—MARY.

HERBACEOUS beds and borders provide those pools of colour that give variety to the garden, but, because of the short life of the plants and the need for generous treatment to obtain the best results, it is advisable to restrict the area to that which is well within one's resources of time and labour.

Every three or four years such areas require to have all plants removed during the autumn, and the land cleaned, thoroughly reconditioned, and replanted. At this season, in other years, there are many attentions required in the way of removals, planting, and feeding. Many have already been mentioned and may still be carried out, such as the removal of annuals past the flowering period and the planting of spring-flowering bulbs and other biennial and perennial herbaceous plants. Other necessary attentions now include lifting and storing summer-flowering gladiolus corms, and cutting down and removing chrysanthemum plants after flowering, those stools required for cuttings being given special accommodation. Lift, divide, and replant Michaelmas daisies, heleniums, doronicums, and other plants inclined to overgrow their allotted space.

Then, after weeding and tidying up, lightly cultivate into the surface of the mixed border such manures as it may require, such as decayed farm manure, bonedust, wood ashes, soot, etc. In the drier localities, in airy positions, and in soil not too rich in humus, space should be found for planting out now border carnations, which naturally thrive under such conditions. Work in a good dressing of bonedust, wood ashes, and carbonate of lime. Tread the ground firm, and set the rooted layers out up to about a foot apart.

April is the start of the planting season, and there is no better time to remove from one part of the garden to another any of the smaller conifers and evergreens that one often feels could be shifted with great advantage. After tying the branches together for compactness, or even shortening and thinning them out, a trench is made round the plant, which is then undermined, leaving it with a good ball of soil and roots. It can then be removed to another part of the garden, where a hole of ample size has been prepared for it. With the winter rains, it will generally re-establish itself quickly and grow away well the following season. In this way, congestion can be relieved in one place and others adequately furnished. The common mistake we make is to crowd our lawns with scattered shrubs, and this is an opportunity to correct it.

EASTER LILIES.

Against the bare communion rail a sheaf
Of Easter lilies—slender, perfume-chaliced, fair;
Old mem'ries surging through the hushed and shadowy dimness—
And in my heart a prayer.
No joyous flame of love to light my soul,
No radiance, no secret ecstasy is there,
But only heaviness, and weary pain and longing,
And in my heart a prayer.
The lilies' saintly beauty stills my tears,
And God stoops down to lift the burden of my care;
Lord, give me wisdom, love, and greater understanding—
And in my heart a prayer.

—Enid B. V. Saunders.

Where trees and shrubs are to be set out during the planting season, careful plans and thorough preparation should be made. In the main, where subjects are chosen which suit the soil and climate, good cultivation only is chiefly required by way of preparation, but in the case of heavily-flowering hybrids, such as roses, hydrangeas, etc., from which a good display is expected, considerable enrichment is often an advantage, especially well down under the roots and as a mulch on the surface.

When the future looks dark, take comfort that they cannot take away the good times you have had.

—Burton.

Where the land has been growing roses for some time, or the land is light and shallow where new rose trees are to be planted, the soil should be removed to a depth of about 18 inches and replaced with a good fibrous loam, working in a supply of decayed farm manure in the lower levels away from the immediate contact with the roots and a generous dressing of bonedust, wood ashes, and soot in the top layer. It should then be allowed to settle and be thoroughly cleaned from weeds before planting.

—WM. C. HYDE, Horticulturist, Wellington.

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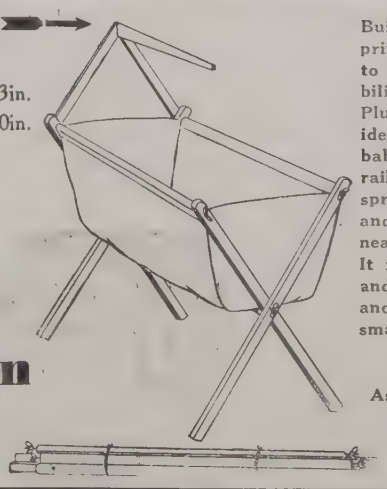

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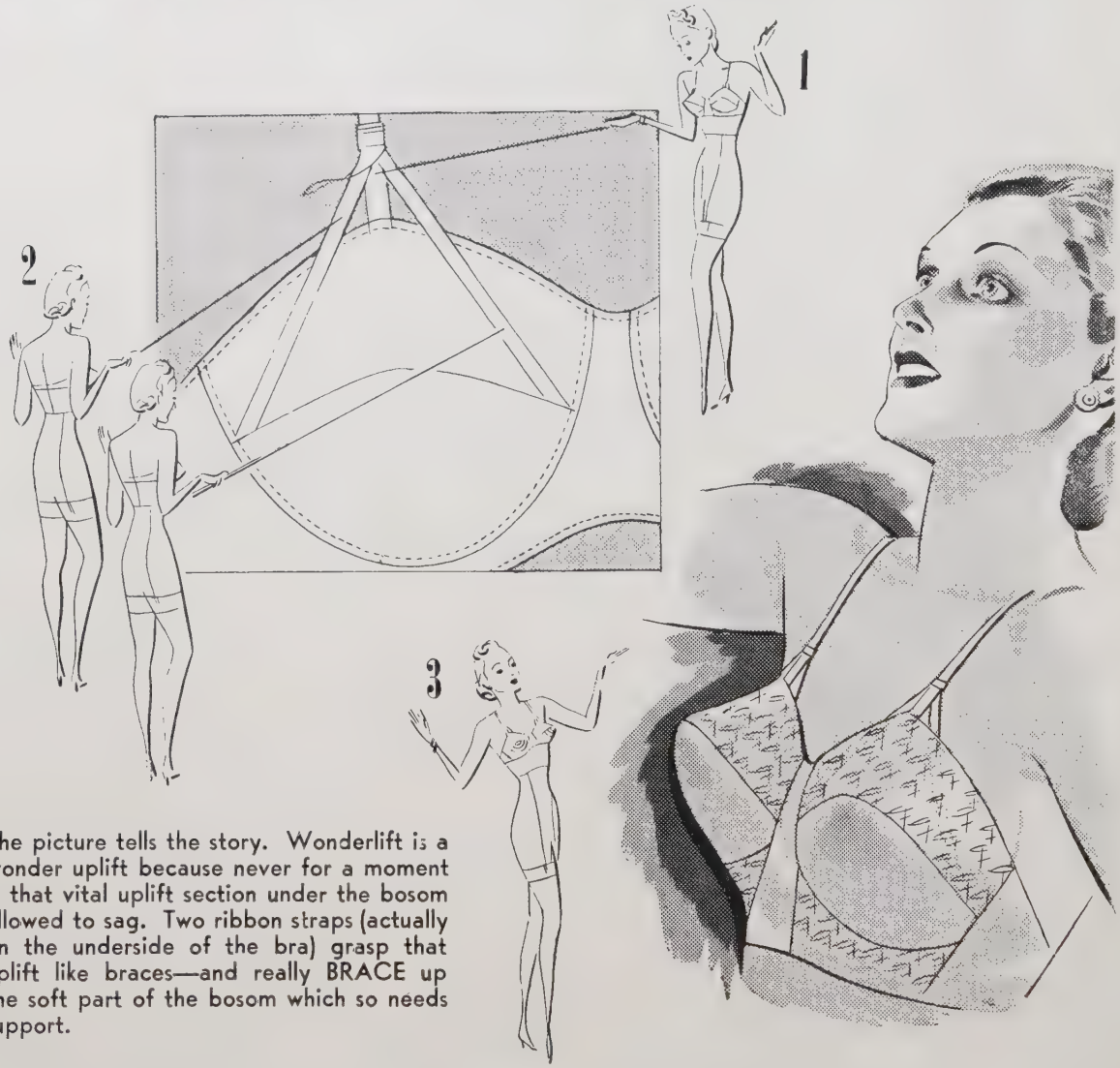

The picture tells the story. Wonderlift is a wonder uplift because never for a moment is that vital uplift section under the bosom allowed to sag. Two ribbon straps (actually on the underside of the bra) grasp that uplift like braces—and really BRACE up the soft part of the bosom which so needs support.

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BRASSIERES

Mary's Mixing Bowl

Delicious Biscuits

THE prize of 2s 6d for the best biscuit recipe is awarded to "A Country Reader," Ashley Bank, for the following recipe:—

UNUSUAL TEA BISCUITS.

5 oz. butter, 7 oz. sugar, 1 egg, 10 oz. flour, ½ teaspoon baking powder, ¼ teaspoon carb. soda, ¼ teaspoon each mixed spice, ground ginger, and cinnamon, ½ teaspoon cocoa, ½ cup chopped walnuts (very fine), 1 dessertspoon golden syrup.

Beat butter and sugar to a cream, then add egg, golden syrup, then all dry ingredients, lastly the walnuts. Mould into a bar like a bar of soap and let stand overnight. In the morning cut in very thin slices with a sharp knife and put on cold greased tray. Bake in a moderate oven. These are delicious and will keep for months in airtight tins. Make a nice lot.—**"A Country Reader," Ashley Bank.**

GINGER NUTS.

Sift together 4 breakfast cups flour, 4 teaspoons ground ginger, 1 teaspoon baking powder. Melt together 1 breakfast cup butter or nice dripping, 1 cup sugar, and 1 cup golden syrup. Mix all together and roll out. Cut into shapes and bake in slow oven on cold trays till nice brown.—**Flo, Whangarei.**

BRAN BISCUITS.

1 cup flour, 1 cup bran, 1 teaspoon baking powder, pinch of salt, 1½ oz. sugar, ¼ lb. butter, 1 egg, 1 dessertspoon golden syrup.

Beat butter and sugar to a cream, add golden syrup and beaten egg, then dry ingredients. Roll thinly, using bran on board, put on greased oven tray (cold) and bake about 10 minutes. **—H. Playle, Waikato.**

OATCAKES.

8 oz. flour, 6 oz. oatmeal, 5 oz. butter, or margarine, 1 teaspoon salt, a pinch of baking powder.

Sift flour, salt, and baking powder, add oatmeal, rub in butter, and mix with cold water. Roll out to ¼-inch thickness and cut in rounds.—**Lucille, South Canterbury.**

MALT BISCUITS.

¼ lb. butter, ¾ lb. sugar, 1 egg, 2 tablespoons malt extract, 2 cups flour, ½ teaspoon bicarbonate of soda.

Beat butter and sugar to cream. Add egg, then malt, flour, and soda. Roll thinly and cut into shapes. Bake in a moderate oven. By using a little less flour, biscuits can be bake in spoonsful on tray. Press each down with a fork.—**"Rata," Spring Creek.**

NUTTY CRISPS.

¼ lb. butter, 1 teacup sugar, 1 egg, 1 large dessertspoon syrup, 1½ cups flour, 1½ teaspoons baking powder, ½ cup wholemeal, 1 teaspoon vanila, ½ cup coconut, 1 cup very finely chopped walnuts.

Mix in given order, adding, if necessary, a very little milk, to mix to a stiff dough. Roll into small balls. Flatten right out with hot fork and bake in a moderate oven 15 minutes. These are delicious and improve with

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SO what about some Eggless Cake recipes? They will be useful, and interesting.

Send your entry to the "Mixing Bowl" before March 20, 1942—2/6 for the best one.

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keeping. Makes 60 biscuits, so is economical, too.—**"Cecily," Southland.**

TOMATO PUREE.

Sufficient to make two gallons in 4 half-gallon jars, 8 quarts or 16 pints. Preserving pan capacity 3 gallons.

First obtain ripe tomatoes, wash thoroughly, cut in half, put 1 pint of water in pan to prevent burning, there is sufficient liquid in the tomatoes. Add 1 tablespoonful of salt, stir well, and bring to the boil. Continue boiling for 5 minutes.

See that jars, rubber rings, and tops are thoroughly sterilised by heating in oven to a temperature of about 250 deg. Fill jars when tomatoes are cooked, screw down tight immediately. Tip jars upside down to see if leaks develop until cool; give tops a final screw before putting away in a cool place.

If careful attention is paid to directions, they will keep indefinitely. When opened for use, contents will keep at least two days, and twice as long if refrigerator is available.

This makes an excellent breakfast when grilled with bacon in the tomatoes, stews, and soups, grilled chops, etc. Sliced cheese and tomatoes grilled is a suitable dish for vegetarians.

—**Mrs. G.B. (Harewood).**

LADYSMITH CAKE.

2 eggs, their weight in butter, flour and sugar, 1 heaped tablespoon cornflour, ½ teaspoon of soda, and 1 teaspoon of cream of tartar.

Beat butter and sugar to a cream, add eggs well beaten, then the rest of the ingredients. Take less than half of this mixture and add to it two teaspoons of cinnamon, also a little more flour to make it stiff. Spread this on the bottom of a cake tin, then a layer of jam, and the rest of the mixture on top. Bake for ½ hour. Ice when cold with coloured icing.—**Bettina, Frankton Junction.**

MOONBEAMS.

1 tablespoon each of butter and sugar, 1 egg, 1 cup flour, 1½ teaspoons baking powder.

Cream the butter and sugar, add egg, mix together, then add 1 cup flour, and 1½ teaspoons baking powder. Roll paste out thinly, spread with a paste of crushed strawberries, and castor sugar, and roll up. Cut into slices one inch thick, roll in coconut, and bake in a moderate oven till golden brown. These are delicious.

LIVER AND WALNUT SAVOURY.

Soak 1 lamb's fry ½ hour in warm salted water, dry well, cut into slices ¼ inch thick. Mix 1 cup breadcrumbs, 1 small chopped onion, pinch of sage, pepper, salt, and lemon juice. Roll liver slices in flour, then in mixture, and fry lightly in melted butter. Pack in layers in a casserole, sprinkle with finely-chopped onion, and walnuts, and top with rashers of bacon. Pour in 1 cup of vegetable stock, cover, and cook ¾ of an hour. Sprinkle with chopped parsley and serve.

RASPBERRY FLAN.

Stewed raspberries, ½ lb. self-raising flour, 2 tablespoons cold water, 1 gill of juice from raspberries, 4 oz. butter or margarine, 1 teaspoon sugar, 1 yolk of egg, 1 pinch salt, ¼ oz. of powdered gelatine.

Rub the butter into the flour and add the salt and sugar. Mix with milk and egg and water to a firm dough. Fit this carefully into an enamel plate, without stretching the pastry. Fill it with rice on a greased piece of paper, to keep the pastry down, and cook in a fairly hot oven until golden brown. Remove the paper and rice and put the plate back in the oven to cook the bottom thoroughly. When cold fill with drained raspberries. Boil the juice with the gelatine until dissolved, cool, stirring constantly until it begins to set, then pour over the raspberries.—**Cis, Edievale.**

APPLE PRESERVE.

4 lb. apples, 1 pint water, a few cloves, 2 inches of stick cinnamon. Grated rind and juice of one lemon, 2 or 3 pieces of bruised ginger. To each pint of apple pulp allow 12 oz. sugar.

Wash the apples carefully, cut into quarters without peeling or coring, put into a pan with the water, cinnamon, lemon juice, rind, cloves, and ginger. Boil to a pulp, then remove cinnamon, ginger, etc., and rub the apples through a sieve. Measure pulp, return to pan, add sugar, stir till the sugar melts, then boil quickly for 30 minutes, stirring constantly. Put into dry, warm jars, and cover when cold.

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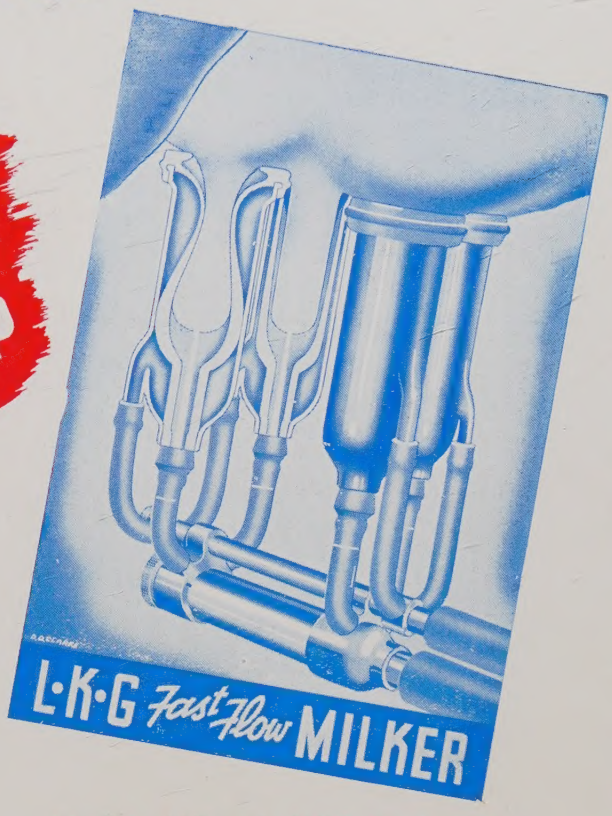

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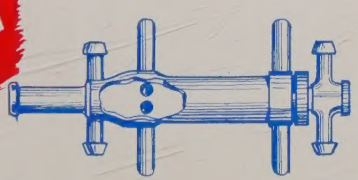

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